NUCLEAR WASTE DISPOSAL

JOINT HEARINGS

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

AND THE

SUBCOMMITTEE ON NUCLEAR REGULATION

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

FIRST SESSION

ON

S. 637

A BILL TO ESTABLISH A PROGRAM FOR FEDERAL STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS, TO SET FORTH A FEDERAL POLICY AND INITIATE A PROGRAM FOR THE DISPOSAL OF NUCLEAR WASTE FROM CIVILIAN ACTIVITIES, AND FOR OTHER PURPOSES

S. 1662

A BILL TO ESTABLISH A LIMITED PROGRAM FOR FEDERAL STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS, TO SET FORTH A FEDERAL POLICY, INITIATE A PROGRAM, AND ESTABLISH A NATIONAL SCHEDULE FOR THE DISPOSAL OF NUCLEAR WASTE FROM CIVILIAN ACTIVITIES, AND FOR OTHER PURPOSES

OCTOBER 5 AND 6, 1981

Energy Committee Publication No. 97-62

Environment Committee Publication No. 97-H40

Printed for the use of the Committees on the Energy and Natural Resources
and Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE
90-812 O WASHINGTON : 1982

S321-15
S311-22

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NUCLEAR WASTE DISPOSAL

MONDAY, OCTOBER 5, 1981

U.S. SENATE, COMMITTEE ON ENERGY AND NATURAL RESOURCES, AND THE SUBCOMMITTEE ON NUCLEAR REGULATION OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,

Washington, D.C.

The committee and subcommittee met, pursuant to notice, at 2:05 p.m., in room 3110, Dirksen Office Building, Hon. James A. McClure, chairman of the Energy Committee, presiding.

Present: Senators McClure, Simpson, Domenici, and Johnston.

Also present: Energy Committee staff: Charles A. Trabandt, chief counsel; Paul Gilman, professional staff member; Benjamin S. Cooper and Willis Smith, professional staff members for the minority. Environment and Public Works staff: James Asselstine, counsel for the majority; and Keith Glaser, counsel for the minority.

OPENING STATEMENT OF HON. JAMES A. McCLURE, A U.S. SENATOR FROM THE STATE OF IDAHO

The CHAIRMAN. Good afternoon, ladies and gentlemen. It is a great privilege and pleasure for me to open the joint hearings of the Committee on Energy and Natural Resources and the Committee on Environment and Public Works on S. 1662, the National Nuclear Waste Policy Act of 1981.

At the outset, I want to express my appreciation to Environment and Public Works Chairman Bob Stafford, Subcommittee Chairman Al Simpson, and my colleague from Idaho on the subcommittee, Steve Symms, and our subcommittee chairman, Pete Domenici, for their cooperation and assistance in the formulation of S. 1662 and its early consideration before the two committees.

S. 1662 represents our collective best effort at a consensus bill at the beginning of the legislative process in the Senate. Additionally, the joint referral of the bill to the two committees and these joint hearings are intended to facilitate the earliest possible consideration of the bill in the two committees and by the full Senate.

That certainly is the intention of this Senator and the distinguished cosponsors.

I also want to acknowledge at this early point that these joint hearings also will consider S. 637, the Nuclear Waste Policy Act, introduced by Senator Johnston and Senator Jackson on March 5, 1981. The Johnston-Jackson bill also draws on the Senate-passed bill from last Congress and the final compromise which Senators Jackson, Johnston, Domenici, and I proffered to the House at the end-of-Congress negotiations in December 1980.

I believe that the similarities of S. 637 and S. 1662 greatly outnumber the differences. And, knowing the great dedication of the Senator from Washington and the Senator from Louisiana to an early legislative solution to the nuclear waste challenge, as well as our bipartisan commitment and cooperation in the past to that objective, I am confident that the Energy and Natural Resources Committee will be able quickly to fashion a consensus bill for early markup.

I am confident that the work of the two committees and the Senate, given these cooperative circumstances, can produce a Senate-passed bill this session. Certainly we will make every effort to accomplish that purpose.

At this point, I ask unanimous consent that the statement I made on introduction of S. 1662, with a full recitation of the history and provisions of the bill, be placed in the hearing record after my statement.

[The statement of Senator McClure on the introduction of S. 1662 and the texts of the bills follow:]

[From the Congressional Record, Sept. 24, 1981]

By Mr. McClure (for himself, Mr. Stafford, Mr. Domenici, Mr. Simpson, and Mr. Symms):

S. 1662. A bill to establish a limited program for Federal storage of spent fuel from civilian nuclear powerplants, to set forth a Federal policy, initiate a program, and establish a national schedule for the disposal of nuclear waste from civilian activities, and for other purposes; by unanimous consent referred jointly to the Committee on Energy and Natural Resources and the Committee on Environment and Public Works, with the proviso that if either committee reports the bill, the other committee shall be obligated to report the bill in 30 calendar days (not including days on which the Senate is in recess for more than 3 days) or be discharged from further consideration thereof.

NATIONAL NUCLEAR WASTE POLICY ACT OF 1981

Mr. McClure. Mr. President, it is a great pleasure and with a special pride that I join my colleagues on the Committee on Energy and Natural Resources and the Commitee on Environment and Public Works of the Senate in introducing today the National Nuclear Waste Policy Act of 1981.

Mr. President, that measure is being introduced today by me on my own behalf for Mr. Stafford, Mr. Domenici, Mr. Simpson, and Mr. Symms.

Mr. President, I also received the concurrence from the chairman and ranking minority member of the Committee on Environment and Public Works to request that this matter be jointly referred to the two committees because we have both about equal interest and equal responsibility with respect to the subject matter of that legislation, and that is by agreement of the parties on both sides.

I am pleased to say that the billl we are introducing today represents the collective judgment of all the cosponsors representing themselves and their respective committees on this side of the aisle with regards to the appropriate and necessary nuclear waste policy for the United States. I believe that this action deserves special note in that these two committees have been working for the past three Congresses to fashion just such a concensus piece of legislation. Such legislation must deal with this most critical and serious national issue in the areas of both national energy policy and natonal environmental policy to assure the predictable and long-term viability of the nuclear power option for this Nation, and indeed for the free world.

I commend each of my colleagues with whom I am a cosponsor today and all of those who have assisted and contributed to the efforts in reaching this action. Hopefully, the spirit of good faith, accommodation, and conciliation required to achieve the common goal represented by the totality of this bill will engender a special spirit in the Senate, in the House, and in the administration to expedite and facilitate enactment finally of a comprehensive nuclear waste policy and program for America in the months immediately ahead.

Mr. President, this bill is a truly comprehensive approach to the ultimate solution to disposition of the large and varied quantities of nuclear waste existing today in the United States and nuclear wastes which will be created in the years and decades ahead. The bill includes aggressive and predictable action in several major programmatic areas.

An interim spent fuels storage program, which would maximize the existing at reactor storage capacity, while at the same time providing all of the necessary elements for alternative storage for spent fuel, including away from reactor storage facilities, would be immediately implemented under the bill.

The interim spent fuel provisions would include a streamlined regulatory process in the Nuclear Regulatory Commission to support both increased at reactor storage and necessary away from reactor facility availability on a timely basis. The combination of these several initiatives and the interim spent fuel program would insure predictable and timely measures necessary to keep America's nuclear powerplants in full operation without any threat of reduced operations or shut-down because of a failure by the Federal Government to provide for interim spent fuel management.

In a similarly aggressive manner, the bill includes a much accelerated program for the ultimate disposal of commercial high-level waste and spent fuel elements in mined geologic repositories. The objective of this much accelerated geologic disposal program would be to bring on line in the 1988 time frame this Nation's first commercial geologic repository for high-level waste.

The specific provisions within this part of the bill provide for the necessary actions for all Federal agencies to support the 1988 objective. Additionally, this part of the bill woud establish a program for having at least one test and evaluation facility in full operation prior to 1988 to provide all necessary information to support the geologic repository program. Also, for the first time, the bill would create a mandatory national site survey program to identify acceptable sites to provide for additional geologic repositories which might be sited in various regions of the United States.

While the combination of the interim spent fuel storage program and the geologic disposal program may conceivably provide two direct steps, one following the other, to a final disposition of high-level waste and spent fuel, the bill incorporates the Senate-passed proposal for a third, potentially necessary, program to be sequenced between interim spend fuel storage on the one hand, and ultimate geologic disposal, on the other hand in the form of a retrievable monitored storage facility program.

This program would require the initial efforts necessary to prepare for congressional consideration in the next Congress of a retrievable-monitored storage facility proposal as an intermediate step or phase in the event that there are any unforseen time delays because of institutional or technical difficulties in the geologic disposal program.

The retrievable monitored storage program would be the extra insurance under this bill to give complete confidence to the American people that nuclear wastes will be properly managed in the event of any foreseeable circumstances in the future. That approach of total confidence underlies the entire bill and is intended to insure that there can no longer be any valid question raised with regard to that complete confidence.

The bill includes several new or modified concepts from the bill passed by the Senate in the last Congress. One of the most noteworthy of those is the proposal in this bill for an assured full-cost recovery by the Federal Government from nuclear power-supplied rate payers for the nuclear waste programs included in the bill. By establishing a mandatory one mill-per-kilowatt-hour users fee on nuclear generated electricity, this bill for the first time would provide a direct financial linkage between the beneficiaries of nuclear power and the cost for interim management and ultimate disposal for nuclear wastes.

This funding mechanism would provide an assured source of funds to carry out the programs and would eliminate not only annual budgetary perturbations in an evermore constrained Federal budget, but the too often repeated shifts of policy direction under succeeding administrations. The nuclear waste policy, programs and required financing would be statutorily fixed and quite predictable under this approach.

One of the more challenging issues which the Congress has confronted in attempting to develop such comprehensive legislative proposals for nuclear waste has been and continues to be the question of State participation in the siting, development, construction, and operation of interim storage facilities and geologic repositories for nuclear waste. This bill incorporates a modification of the formulation passed by the Senate in the last Congress, which was the subject of intense negotiation with various parties over the past year.

The bill incorporates a combination of the so-called consultation and concurrence methodology developed and enacted, and now in practice for the waste isolation pilot project in New Mexico pursuant to statutory provisions, on the one hand, and the State-congressional approach adopted in the Senate-passed bill of last Congress and the negotiated at length with our colleagues in the House and other interested parties. The formulation in this bill should insure, we sincerely hope, the best of the available methods reflecting our national experience in this area in the past several years.

I believe it is fair to say that the cosponsors of this legislation believe that these provisions carefully balance the constitutional, equitable, legal, and practical interests of the several parties at the Federal, State, and local levels with legitimate interests in these facility matters. I would hope that these provisions will receive the most serious and thoughtful consideration by our colleagues in the Senate and also in the House, in the administration, the several States and in the various elements of the nuclear industry.

We are ready, anxious, and willing to work with all of these parties to fashion a consensus approach to this most essential and important aspect of nuclear waste management in this country.

Mr. President, let me turn now to a brief review of the nuclear waste issue as we now confront it with this comprehensive legislation. The election of President Carter led this Nation into a 4-year period of chaos and turmoil in dealing with the back end of the nuclear fuel cycle generally, and particularly, the nuclear waste issue. All of us who are cosponsors on this bill and many of our colleagues in Congress have spent enormous amounts of time over the past 4 years reacting to that circumstance. Beginning with President Carter's April 7, 1977, ban on commercial reprocessing, the resulting dismissal of the generic environmental statement on mixed oxides (GESMO), and the Carter domestic and foreign spent fuel policies, the entire back end of the nuclear fuel cycle has been in a state of confusion and ever-changing and conflicting policies and programs.

A number of different initiatives and amendments in enacted bills, several which I authored, particularly in the areas of domestic and foreign spent fuel policy, attempted to deal piecemeal with the problems posed by the Carter administration's nuclear waste activities. Finally, in the middle of 1979, comprehensive nuclear waste legislation was introduced and referred to several Senate committees.

The Committee on Energy and Natural Resources promptly considered and reported such a comprehensive bill, S. 2189, in December 1979. Shortly thereafter, President Carter on February 12, 1980, announced his nuclear waste policy. The announced February 12 policy was characterized quite objectively as a blueprint for delay, study, litigation, eternal research, and more and more delay.

Analysis of the February 12 policy led to persuasive analyses suggesting the year 2007 as the earliest possible date for an operational nuclear waste facility in this country, almost 30 years after announcement of the policy. Prior to the announced Carter policy, but during the several year process of formulation, the Circuit Court of Appeals for the District of Columbia, in response to a lawsuit challenging the predictable disposal of nuclear waste in proceedings for licensing a nuclear powerplant, ordered the Nuclear Regulatory Commission to initiate the so-called waste confidence proceedings to establish for legal purposes a national confidence with regards to a predictable disposal of nuclear waste.

This court-ordered proceeding thus linked legally the prospective licensing of future nuclear powerplants and a national confidence in the ultimate disposal of nuclear waste. At the same time, a number of States scheduled referendums dealing with the nuclear power issue generally and various elements of the nuclear waste question specifically.

At that point, it was clear to all of us with an interest in preserving the nuclear option, that congressional action was imperative to achieve any predictable result in the nuclear waste issue. After waiting several months for other committees to complete their action on pending nuclear waste bills, the Senate finally took up S. 2189 in late July of last year and passed for the first time in either House of Congress a comprehensive nuclear waste legislation.

On December 3, 1980, after extensive negotiations among the three House committees with jurisdiction, the House passed a less comprehensive, but still significant, nuclear waste bill. Almost around-the-clock negotiations ensued at the end of the last Congress to attempt to develop an acceptable compromise bill for the two Houses. Unfortunately, these negotiations were not successful in leading to such a compromise comprehensive bill.

Perhaps the best effort in accommodation was represented by a printed amendment, No. 2912 to S. 2189 which was introduced by myself, Senator Domenici, Senator Jackson, and Senator Johnston on December 10, 1980.

Although the Congress adjourned without final action on amendment No. 2912 or any other comprehensive legislation, these negotiations did lead to enactment of one title of the comprehensive bill, as the Low Level Radioactive Waste Policy Act, Public Law 96-573, passed by Congress on December 13 and enacted on December 22, 1980. I am pleased to note that this low level waste law, which was the subject of such intense negotiation in the final hours of the last Congress, has led to very positive State actions throughout the Nation.

Additionally, I am pleased that several elements of the Senate-passed bill have served to form the basis for a far more aggressive program at the Department of Energy and the Nuclear Regulatory Commission in the Reagan administration. Many of us, in fact, have been waiting on this legislation in order to allow those programs in the fiscal year 1982 budget process to proceed to the point where we could make informed judgments as to what could be done administratively without legislation, and what remains to require legislative action to accomplish the objectives we have had in mind.

Those outlines of administrative versus legislative action have now become clear and we have now become prepared to initiate aggressive action, today.

The bill we are introducing today represents another, and I would hope, final attempt at enacting comprehensive nuclear waste legislation for this Nation. It represents the collective judgment on the respective full committee and subcommittee chairmen of the two primary committees of jurisdiction in the Senate, as well as other interested and concerned members. It includes essential elements of S. 2189, as reported almost 2 years ago by the Energy and Natural Resources Committee, of S. 2189 passed by the Senate last year, and the final negotiated printed amendment No. 2912 to S. 2189.

It also includes several new or refined concepts, such as private financing which I discussed earlier, which have emerged in the intervening time. The combination of all of the elements will insure that this bill is in fact a late 1981 legislative initiative to address the nuclear waste issue for the remainder of this administration, this decade and, indeed, this century. The bill truly is a blueprint or battle plan for a final and successful assault on the financial, legal, institutional and technical hurdles which have frustrated the achievement of an early demonstrated solution to the nuclear waste challenge in the predictable future.

Mr. President. I would be remiss if I did not speak as a representative of the people of my home State of Idaho in introducing this bill. The good people of Idaho have been waiting for many, many long years for a predictable, near term conclusion to the nuclear waste issue and the management of nuclear wastes which have accumulated over the past three decades in our State.

Our people have waited through those many long years with great patience, while meanwhile continuing to support enthusiastically efforts in Idaho in the nuclear weapons program, the naval nuclear power program, and the civilian nuclear power research and development program.

Candidly, our people in Idaho have been promised more than once by various Federal officials a near-term solution to our waste management concerns. While the patience of our people may have been tested over time, and sorely tested in the last administration, the aggressive programs already proposed by this administration and the provisions of this bill should give the people of Idaho great comfort and great confidence at long last that the nuclear waste issue will be addressed constructively, positively, and successfully.

At long last, action by a seriously committed and concerned Congress will forge exactly the kind of partnership between the executive and legislative branches of the Federal Government needed to insure swift and responsible action on the nuclear waste issue. I am compelled to commend the people of my State for their continued efforts to deal with this issue. I sincerely hope that this Congress will mark a successful and more than acceptable conclusion to their long wait for promised Federal action. Again, I thank and commend by colleagues who are cosponsors.

97TH CONGRESS
1ST SESSION

S. 1662

To establish a limited program for Federal storage of spent fuel from civilian nuclear powerplants, to set forth a Federal policy, initiate a program, and establish a national schedule for the disposal of nuclear waste from civilian activities, and for other purposes.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 24 (legislative day, SEPTEMBER 9), 1981

Mr. MCCLURE (for himself, Mr. STAFFORD, Mr. DOMENICI, Mr. SIMPSON, and Mr. SYMMS) introduced the following bill; which was read twice and referred jointly to the Committee on Energy and Natural Resources and the Committee on Environment and Public Works, with the proviso that if either committee reports the bill, the other committee shall be obligated to report the bill in thirty calendar days (not including days on which the Senate is in recess for more than three days) or be discharged from further consideration thereof

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A BILL

To establish a limited program for Federal storage of spent fuel from civilian nuclear powerplants, to set forth a Federal policy, initiate a program, and establish a national schedule for the disposal of nuclear waste from civilian activities, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Nuclear Waste Policy Act of 1981".

TITLE I—FINDINGS AND PURPOSE

FINDINGS

SEC. 101. The Congress finds and declares that—

(a) a reliable system adequate to provide sufficient electrical energy to meet the Nation's current and anticipated needs is an essential part of a comprehensive national energy policy and is vital to national security and public welfare;

(b) an adequate electrical system requires a diversified base of primary energy sources in order to avoid excessive reliance upon any single alternative energy source;

(c) a diverse base of primary energy sources can be achieved only if each available source competes on an equal footing in decisions on the siting and construction of facilities for generating commercial electric power;

(d) nuclear energy can—

(1) make a significant contribution to national supplies of electricity;

(2) offer site-specific advantages in environmental impact, cost, and fuel availability over other primary sources of energy; and

(3) help reduce United States dependence on insecure sources of foreign oil;

(e) lack of an effective Federal policy for the interim storage of spent fuel and disposal of nuclear waste from civilian nuclear activities unreasonably burdens the choice of nuclear energy as an alternative primary source in decisions on siting and construction and operation of powerplants and unduly constrains efforts to establish a diverse base of primary energy sources;

(f) the persons owning and operating civilian nuclear powerplants have the primary responsibility for providing for the interim storage of spent fuel from civilian nuclear powerplants, but the Federal Government has the responsibility to provide sufficient capacity for interim storage of spent fuel for those civilian nuclear powerplants that cannot reasonably provide adequate onsite storage capacity when needed to assure the continued, orderly operation of the powerplant;

(g) the Federal Government has the responsibility for the disposal of high-level radioactive waste from civilian nuclear activities in order to protect the public health and the safety, the environment, and the common defense and security;

(h) the costs associated with the storage and disposal of nuclear waste from civilian activities should, to the greatest extent possible, be borne by the direct beneficiaries of such activities and should be considered in the selection or rejection of nuclear energy over alternative primary energy sources;

(i) the technology exists and is under development which would provide reasonable assurance that spent fuel and high-level radioactive waste can be safely disposed of and that disposal facilities for spent fuel and high-level wastes can be available when needed;

(j) nuclear wastes generated in the national defense program have been accumulating for more than thirty years, and spent nuclear fuel and nuclear wastes from the commercial industry are increasing rapidly;

(k) nuclear waste has become a major issue of public concern, and stringent precautions must be taken to ensure that nuclear wastes do not adversely affect the public health and safety of this or future generations;

(l) the siting, development, and loading of nuclear waste repositories are responsibilities of the Federal Government;

(m) confidence in the ability of the Federal Government to manage a program providing for the safe and permanent disposal of nuclear wastes must be substantially increased if nuclear power is to contribute significantly to meeting the energy needs of the United States in the future;

(n) Federal nuclear waste disposal programs have been ineffective due to—

(A) inadequate coordination among the various Federal agencies and departments which have responsibilities relating to nuclear waste management;

(B) the lack of a policymaking process which integrates the views of all Federal agencies and departments into a comprehensive Government-wide policy; and

(o) the Secretary must increase his efforts to consult and cooperate with States and localities concerning Federal repository siting, development, and loading activities;

(p) a successful nuclear waste management strategy requires the full participation of State and local officials, Indian representatives and the public in a step-by-step, technologically sound program, to promote public confidence in the safe disposal of nuclear waste, consistent with the responsibility of the Federal Government to determine public health and safety matters related to such program; and

(q) the first step in a successful nuclear waste management strategy is the establishment of a national schedule for the development of programs and facilities for the storage and disposal of high-level radioactive waste and spent fuel in a timely manner.

PURPOSE

SEC. 102. The purpose of this Act is to—

(a) assume the Federal responsibility for the acquisition and interim storage of spent fuel from civilian nuclear powerplants where needed to assure the orderly operation of such plants, and for the disposal of high-level radioactive waste from civilian nuclear activities;

(b) establish a definite Federal policy for the disposal of high-level radioactive waste from civilian nuclear activities and a national schedule for developing the facilities and programs needed to carry out that policy in a timely manner;

(c) authorize the Secretary to—

(1) acquire or construct at least one facility for the interim storage of spent fuel from civilian nuclear powerplants not to exceed a specified total storage capacity; and

(2) establish systems for the long-term storage and disposal of high-level radioactive waste generated by civilian nuclear activities, and to develop, construct and put in operation the facilities comprising these systems;

(d) establish a system for financing the construction, operation, and maintenance of Federal storage and disposal facilities for high-level radioactive waste and spent fuel from civilian nuclear activities;

(e) improve coordination of Federal nuclear waste management programs; and

(f) provide for improved consultation and cooperation between the Department of Energy and States and localities concerning Federal storage and repository siting and development activities, consistent with the responsibility of the Federal Government to determine public health and safety matters related to such activities.

TITLE II—DEFINITIONS

Sec. 201. As used in this Act the term—

(1) "civilian nuclear powerplant" means a utilization or production facility required to be licensed under section 103 or 104 b. of the Atomic Energy Act of 1954, as amended;

(2) "Commission" means the Nuclear Regulatory Commission;

(3) "disposal" means the long-term isolation of radioactive waste as spent fuel in a repository;

(4) "environmental impact statement" means any document prepared pursuant to or in compliance with the requirements of section 102(2)(C) of the National Environmental Policy Act of 1969 (83 Stat. 852);

(5) "Secretary" means the Secretary of the Department of Energy;

(6) "spent fuel" means nuclear fuel that has been irradiated in and recovered from a civilian nuclear powerplant or from other civilian nuclear activities;

(7) "Department" means the Department of Energy;

(8) "Governor" means the Governor of a State, or successors to the Governor, during their respective terms of office, or their designees;

(9) "nuclear waste" means high-level waste, transuranic contaminated waste, and low-level waste;

(10) "high-level waste" means the highly radioactive wastes resulting from the reprocessing of spent nuclear fuel, and includes both the liquid waste which is produced directly in reprocessing and any solid material into which such liquid waste is made;

(11) "repository" means a facility for the permanent, deep geologic disposal of high-level waste, transuranic contaminated waste, or spent nuclear fuel, whether or not such facility is designed to permit the subsequent recovery of such material, except for facilities to be used exclusively for research and development purposes containing an insignificant amount of such material;

(12) "storage" means retention of nuclear waste or spent nuclear fuel with the intent to recover such material for subsequent use, processing, or disposal;

(13) "affected State" means the State in which a long-term storage or disposal facility for high-level radioactive waste or spent fuel is proposed to be located;

(14) "Indian tribe" means an Indian tribe, as defined in the Indian Self-Determination and Education Assistance Act (Public Law 93-638);

(15) "affected Indian tribe" means any tribe in an affected State whose rights reserved through statutes, treaties, Executive orders, judicial decision, or other applicable law could reasonably be expected to be adversely affected by the development, construction or operation of a facility for the long-term storage or disposal of radioactive waste;

(16) "nuclear waste and spent nuclear fuel management" means the transport, storage, and disposal of nuclear waste and spent nuclear fuel; and

(17) "site characterization" means the program of exploration and research, both in the laboratory and in the field, undertaken to establish the geologic conditions and the ranges of ~~those~~ parameters of a particular site relevant to the procedures under this part. Site characterization includes borings, surface excavations, excavation of exploratory shafts, limited subsurface lateral excavations and borings, and in situ testing needed to determine the suitability of the site for a geologic repository, but does not include preliminary borings and geophysical testing needed to decide whether site characterization should be undertaken.

TITLE III—INTERIM STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS

SEC. 301. (a) It is the policy of the Federal Government that—

(1) the persons owning and operating civilian nuclear powerplants have the primary responsibility for providing interim storage of spent fuel from such powerplants, by maximizing, to the extent practical, the effective use of existing storage facilities at the site of each civilian nuclear powerplant, by adding new

onsite storage capacity in a timely manner where practical, and by the use of privately owned and operated offsite storage facilities where practical;

(2) the Federal Government has the responsibility to encourage and expedite the effective use of existing storage facilities and the addition of needed new storage capacity at the site of each civilian nuclear powerplant; and

(3) the Federal Government has the responsibility to provide, as soon as possible, sufficient capacity for interim storage of spent fuel for those civilian nuclear powerplants that cannot reasonably provide adequate storage capacity at the site of the powerplant when needed to assure the continued, orderly operation of the powerplant.

(b) The policy under subsection (a) shall provide for—

(1) the utilization of available spent fuel pools at the site of each civilian nuclear powerplant to the extent practical and the addition of new spent fuel storage capacity where practical, either at the site of the powerplant or at a privately owned and operated offsite storage facility; and

(2) the establishment of a federally owned and operated system for the interim storage of spent fuel at one or more away-from-reactor facilities with a limited

capacity sufficient to prevent disruptions in the orderly operation of nuclear powerplants that cannot reasonably provide adequate spent fuel storage capacity at the powerplant site when needed.

SEC. 302. (a) The Secretary, consistent with such criteria as he prescribes under the policy set forth in section 301 and as are required under this section, shall offer to enter into, and may enter into, contracts with persons owning and operating civilian nuclear powerplants that the Secretary determines cannot reasonably provide adequate spent fuel storage capacity at the powerplant site to ensure the continued orderly operation of the powerplant, through the maintenance of a full core reserve storage capability, either by utilizing available spent fuel pools to the extent practical or by adding new spent fuel storage capacity at the site of the powerplant: *Provided, however,* That the Secretary shall not enter into contracts for spent fuel in amounts in excess of the available storage capacity specified in section 305(a). Those contracts shall provide that the Federal Government will (1) take title to such amounts of spent fuel from the powerplants as the Secretary determines cannot be stored onsite, (2) transport the spent fuel to a federally owned and operated interim away-from-reactor storage facility, and (3) store such fuel in the facility pending further processing, storage, or disposal.

(b) Not later than ninety days after the date of enactment of this Act, the Secretary shall propose, by rule, procedures, and criteria for making the determination required by subsection (a) that a nuclear powerplant cannot reasonably provide adequate spent fuel storage capacity at the powerplant site when needed to ensure the continued orderly operation of the powerplant.

(c) Nothing in this Act authorizes the Secretary to take title to spent fuel, transport spent fuel, store or dispose of spent fuel or the waste products associated with spent fuel from a nuclear powerplant not located within the United States.

SEC. 303. A contract entered into under section 302 shall provide—

(a) for a one-time payment at the time the Federal Government acquires the spent fuel of a charge per unit of spent fuel, as such unit is defined by the Secretary, which charge is determined by the Secretary to be adequate to cover—

(1) the cost of transportation of such spent fuel; and

(2) the proportion of the costs of the construction and operation, maintenance and decommissioning of Federal interim away-from-reactor

storage facilities, which proportion is associated with such spent fuel;

(b) for the retention by the owner of such spent fuel of a nontransferable right to the value of the remaining fuel resource less the costs of recovery, as determined at the time of recovery. The right ends when the Federal Government—

(1) takes action resulting in the recovery of the remaining fuel resource and gives to the owner of the right an amount of money equal to the value of the recovered fuel less the costs of recovery; or

(2) disposes of such fuel in a repository;

(c) that title to the spent fuel together with all rights to such fuel, except as otherwise provided in this Act, passes to the Secretary at the site of the powerplant at the time the Secretary takes possession of the spent fuel; and

(d) that the contract becomes effective when the interim away-from-reactor storage facility is available as determined by the Secretary by notice in the Federal Register.

SEC. 304. (a) The Secretary shall provide notice of intent to enter into such contracts by publishing notice in the Federal Register not later than one hundred and eighty days after the date of enactment of this Act. Such notice shall contain such information as the Secretary considers appropriate concerning proposed terms and conditions of such contracts.

(b) The Secretary shall establish the one-time payment charge per unit of spent fuel required by section 303(a) on an annual basis, based on calculation of the costs listed in section 303(a), and shall publish such annual one-time payment charge and the calculation thereof in the Federal Register. Each such annual one-time payment charge shall become effective thirty days after publication and shall remain effective for a period thereafter of twelve months as the charge for the costs listed in section 303(a) for any spent fuel, title to which is transferred to the Federal Government during that twelve-month period.

SEC. 305. (a) The Secretary shall construct, acquire, or lease one or more away-from-reactor facilities for the interim storage of spent fuel from civilian nuclear powerplants with a total storage capacity at all such facilities of not more than two thousand eight hundred metric tons of uranium. The facilities shall—

(1) be made available in a timely manner to accommodate all spent fuel for which commitments have been made pursuant to section 302 of this Act; and

(2) be subject to a license under the provisions of section 202(3) of the Energy Reorganization Act of 1974 (88 Stat. 1233), as amended: *Provided,* That in determining whether to issue a license for such a facility, the Commission shall not consider the need for the facility. The Secretary shall submit to the Commission a license to construct, acquire or lease, and operate such a facility not later than January 1, 1983.

(b) The Secretary, in providing for the transportation of spent fuel under this Act, shall utilize by contract private industry to the fullest extent possible in each aspect of such transportation. The Secretary shall use direct Federal services for such transportation only upon a determination of the Secretary of Transportation, in consultation with the Secretary, that private industry is unable or unwilling to provide such transportation services at reasonable cost. The authority of the Secretary to enter into contracts under this section shall be limited to the extent or in such amounts as are provided in appropriations Acts.

(c) The Secretary, on a continuing basis, shall analyze and make projections of the availability when needed of spent fuel transportation casks required to support transportation requirements pursuant to subsection (b). The Secretary and the Commission are authorized and directed to take such actions as the Secretary and the Commission, respectively, deem necessary and appropriate to ensure the timely availability when needed of such spent fuel transportation casks.

SEC. 306. When an interim away-from-reactor storage facility is available, the Secretary shall take possession of and transport to a designated storage facility any spent fuel covered by a contract made under section 302 of this Act. The Secretary shall take this action within thirty days after the date on which the owner of such spent fuel provides notice in writing to the Secretary that such spent fuel is available.

SEC. 307. Funds made available to the Secretary for the purpose of—

(a) acquiring plant and capital equipment or land; or

(b) for planning, construction, or modification of facilities,

to make available facilities for the interim storage of spent fuel from civilian nuclear powerplants away from the reactor under any law making appropriations of funds or authorizations for appropriations of funds for the fiscal year ending September 30, 1979, or the fiscal year ending Septembr 30, 1980, including funds authorized and appropriated for Project 79-1-p (away-from-reactor spent nuclear fuel storage capacity) in legislation authorizing appropriations for the Department of Energy for the fiscal year ending September 30, 1980, shall be available to carry out the purposes of section 305.

SEC. 308. (a) In carrying out the provisions of sections 301 through 307 with regard to any facility for the interim storage of spent fuel from civilian nuclear powerplants which the Secretary is authorized by section 305(a) to construct, acquire or lease, the Secretary shall—

(1) as soon as practicable, but not later than ninety days after enactment of this section, notify in writing the Governor and the legislature of any State in which is located a potentially acceptable site for such a facility or an existing facility potentially suitable for interim storage of spent fuel of his intention to investigate that site or facility;

(2) during the course of investigation of such site or facility, keep the Governor and the legislature currently informed of the progress of work and results of the investigation;

(3) at the time of selection by the Secretary of any site or existing facility, but prior to undertaking any site-specific work or alterations, promptly notify the Governor and the legislature in writing of such selection;

(4) throughout the course of any subsequent work on that site or existing facility, furnish the Governor

all relevant information on a current basis and provide him with the opportunity for review and comment from time to time.

(b) If within a reasonable time after the Governor has received notice of selection required by subsection (a)(3), the Governor notifies the Secretary in writing of his objections to the facility, the Secretary shall suspend further work on such facility and promptly transmit the Governor's objections together with the Secretary's comments and recommendations to the President.

(c) Unless within ninety days after receipt of the Secretary's notification under subsection (b) the President determines that such facility is essential to the national interest, the Secretary shall terminate activities specific to the facility. Such determination shall not be subject to judicial or administrative review.

(d) During the regulation and monitoring of the facility, the Governor or his designee shall have the right to be currently informed of all relevant information, and shall have the right to review and comment on such matters from time to time.

SEC. 309. Section 202(3) of the Energy Reorganization Act of 1974 is amended to read:

"(3) Facilities used primarily for the receipt and storage or disposal of high-level radioactive waste or spent fuel resulting from activities licensed under such Act or spent fuel from foreign reactors transferred under a subsequent arrangement authorized under such Act.".

SEC. 310. Transportation of spent fuel under section 303(a) shall be subject to licensing and regulation by the Commission as provided for transportation of commercial spent fuel under existing law.

SEC. 311. (a) The Secretary, the Commission, and other appropriate Federal officials shall take such actions as they consider necessary to encourage and expedite the effective use of existing storage facilities and the addition of needed new storage capacity at the site of each civilian nuclear powerplant consistent with—

(1) the protection of the public health, safety, and the environment;

(2) economic considerations;

(3) continued operation of the powerplant;

(4) the sensibilities of the population surrounding such powerplant; and

(5) otherwise applicable law.

(b) The Secretary, in consultation with the Commission, shall establish a cooperative program to assist and encourage the private development of alternate technologies for the storage of spent fuel at the sites of civilian nuclear powerplants, with the objective of developing one or more alternate technologies that can be licensed by the Commission on a generic basis for use at the sites of all civilian nuclear powerplants without the need for additional site-specific approvals by the Commission to the maximum extent practicable. For the purposes of this subsection, "alternate technologies" shall include, but are not limited to, spent fuel storage casks.

SEC. 312. (a) Any person filing an application with the Commission after the date of enactment of this Act for a license, or for an amendment to an existing license, to expand the spent fuel storage capacity at the site of a civilian nuclear powerplant, through the use of high-density fuel storage racks, fuel rod compaction, the transshipment of spent fuel to another powerplant within a utility system, the construction of additional spent fuel pool capacity, or by other means, may submit a petition to the Commission for issuance of the license or license amendment on an interim basis prior to the conduct or completion of any required hearing upon such application.

(b) The Commission shall grant the petition submitted under subsection (a) and issue the license or license amendment on an interim basis if the Commission or its designee determines that—

(1) in all respects other than the conduct or completion of any required hearing, ~~the~~ requirements of law are met; and

(2) in accordance with such requirements, there is reasonable assurance that the activities authorized by the license or license amendment during the interim period, in accordance with the terms and conditions of such license or license amendment, will provide adequate protection to the public health and safety and the environment during the interim period.

SEC. 313. (a) In any Commission hearing pursuant to section 189 of the Atomic Energy Act of 1954, as amended, on an application for a license, or for an amendment to an existing license, filed after the date of enactment of this Act, to expand the spent fuel storage capacity at the site of a civilian nuclear powerplant, through the use of high-density fuel storage racks, fuel rod compaction, the transshipment of spent fuel to another such powerplant within a utility system, the construction of additional spent fuel pool capacity or dry storage capacity, or by other means, the Commission shall first provide the parties to the proceeding an opportunity to submit for the record such written data, views, or arguments as the hearing board may specify. At the request of any party, the hearing board shall provide an opportunity for oral argument with respect to any matter identified in the written submissions which the hearing board determines to be in controversy among the parties. The hearing shall be preceded by such discovery procedures as the rules of the Commission shall provide, and as ordered by the hearing board. The hearing board shall require each moving party, including the Commission staff, to submit in written form, at the time the proceeding is initiated, all the facts and arguments upon which that party proposes to rely that are known at such time to that party.

(b)(1) At the conclusion of any hearing under subsection (a) of this section, the hearing board shall designate any disputed question of fact, together with any remaining questions of law, for resolution in an adjudicatory hearing only if it determines that—

(A) there is a genuine and substantial dispute of fact involving factual assumptions or methodology upon which expert opinion is based, or concerning the credibility or competence of an expert witness significantly relied upon by one or more of the parties to the proceeding, which can only be resolved with sufficient accuracy by the introduction of reliable and specifically identified evidence in an adjudicatory hearing; and

(B) the decision of the Commission is likely to depend in whole or in part on the resolution of such dispute.

(2) In making a determination under this subsection, the hearing board shall designate in writing the specific facts that are in genuine and substantial dispute, the reason why the decision of the agency is likely to depend on the resolution of such facts, and the reason why an adjudicatory hearing is likely to resolve the dispute.

(c) No court shall hold unlawful or set aside a decision of the Commission in any proceeding described in subsection (a) because of a failure by it to use a particular procedure pursuant to this section unless—

(A) an objection to the procedure used was presented to the hearing board in a timely fashion or there are extraordinary circumstances that excuse the failure to present a timely objection, and

(B) the court finds that such failure has precluded a fair consideration and informed resolution of a central issue of the proceeding taken as a whole.

SEC. 314. In any proceeding on an application for a license, or for an amendment to an existing license, filed after the date of enactment of this Act, to expand the spent fuel storage capacity at the site of a civilian nuclear powerplant, through the use of high-density fuel storage racks, fuel rod compaction, the transshipment of spent fuel to another such powerplant within a utility system, the construction of additional spent fuel pool capacity or dry storage capacity or by other means, the Commission shall not consider as alternatives the storage of spent fuel in away-from-reactor storage facilities.

TITLE IV—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE AND SPENT FUEL FROM CIVILIAN NUCLEAR ACTIVITIES

SEC. 401. (a) It is the policy of the Federal Government that—

(1) the Federal Government has the responsibility to provide for the permanent disposal of solidified high-level radioactive waste and spent fuel from civilian nuclear activities;

(2) spent fuel, unless otherwise processed, and high-level radioactive waste from civilian nuclear activities must be permanently disposed of in a federally owned and operated repository;

(3) the Federal Government has the responsibility to assure that repositories capable of safely disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities are available with sufficient capacity when needed; and

(4) the Federal Government has the responsibility to demonstrate as soon as possible that high-level waste and spent fuel from civilian nuclear activities can be disposed of in a manner that provides adequate pro-

tection to the public health, safety, and the environment.

(b) The policy under subsection (a) shall provide for—

(1) the establishment of a federally owned and operated program for the siting, development, construction, and operation of repositories capable of safely disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities, which repositories are to be licensed by the Commission;

(2) a national schedule for accomplishing the regulatory and programmatic actions needed to achieve the objective of obtaining by January 1, 1988, a Commission authorization to construct the first full-scale, operational repository capable of safely disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities, and achievement of operational status for the repository as soon thereafter as possible; and

(3) the development, construction, and operation of at least one test and evaluation facility for the purpose of developing the packaging, handling, and emplacement technology for solidified high-level radioactive waste and spent fuel needed to further the demonstration of disposal of such waste and spent fuel, with

the objective of achieving operational status of one such facility by January 1, 1988.

DEVELOPMENT OF EPA STANDARDS AND NRC TECHNICAL CRITERIA

SEC. 402. (a) EPA STANDARDS.—Not later than June 1, 1982, the Administrator of the Environmental Protection Agency, pursuant to authority under existing law, shall, by rule, promulgate generally applicable standards for offsite releases of radioactivity from repositories capable of disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities.

(b) NRC TECHNICAL CRITERIA.—Not later than January 1, 1983, the Commission, pursuant to authority under existing law, shall, by rule, promulgate technical criteria for review of an application—

(1) for authority to construct a repository capable of disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities,

(2) for a license to emplace such waste and spent fuel in the repository, or

(3) for a license amendment to decommission the repository.

Such criteria shall provide for the use of multiple barriers in the design of the repository and shall limit the retrievability of the waste and spent fuel emplaced in the repository unless such action is needed to protect the public health, safety, and the environment.

IDENTIFICATION OF SITES FOR REPOSITORIES

SEC. 403. (a) GUIDELINES FOR REPOSITORY SITE RECOMMENDATION.—Not later than January 1, 1982, the Secretary, in consultation with the Commission, the Environmental Protection Agency, and the United States Geological Survey, shall issue general guidelines for the recommendation of sites for repositories capable of safely disposing of solidified high-level radioactive waste and spent fuel from civilian nuclear activities. Under such guidelines, the Secretary shall specify factors that would disqualify a site from development as a repository, including factors pertaining to the location of valuable natural resources, proximity to population, hydrogeophysics, seismic activity, and nuclear defense activities. The guidelines shall require the Secretary to consider the various geologic media in which sites for repositories may be located and, to the extent practicable considering the schedule of actions contained in this title, to recommend sites in different geologic media. The Secretary shall use the guidelines established under this subsection in considering sites to be recommended under subsection (b).

(b) SITE RECOMMENDATIONS BY THE SECRETARY.—

(1) Not later than June 1, 1982, the Secretary shall identify and recommend to the President at least

two sites that the Secretary determines are suitable for site characterization. Not later than January 1, 1983, the Secretary shall identify and recommend to the President at least one additional site which the Secretary determines is suitable for such purpose. Each recommendation of a site shall include a detailed statement of the basis for the recommendation. If the Secretary recommends a site to the President, the Secretary shall notify the Governor of the State in which the site is located and the Tribal Council of any affected Indian tribe of the Secretary's recommendation and the basis for such recommendation.

(2) Before recommending to the President any site for characterization, the Secretary shall notify the Governor of the State in which the site is located and the Tribal Council of any affected Indian tribe of the proposed recommendation, and the Secretary shall hold public meetings in the vicinity of the site to inform the residents of the area in which the site is located of the proposed recommendation and to receive their comments.

(c) PRESIDENTIAL REVIEW OF RECOMMENDED SITES.—

(1) The President shall review each site recommendation of the Secretary under subsection (b).

Within sixty days after the submission of a recommendation for a site, the President in his discretion shall either approve or disapprove the site, and transmit his decision to the Secretary, to the Governor of the State in which the site is located, and to the Tribal Council of any affected Indian tribe. If the President fails to approve or disapprove the site in accordance with this paragraph during such sixty-day period, or within such period fails to invoke his authority under paragraph (2) to delay the determination, the site shall be considered to be approved.

(2) The President may delay for not more than six months his decision under paragraph (1) to approve or disapprove a site upon determining that the information provided with the recommendation is not sufficient to permit a decision within the sixty-day period referred to in paragraph (1). The President may invoke his authority under this paragraph by submitting written notice to the Congress, within such period, of his intent to utilize the authority provided under this paragraph. If the President invokes this authority under this paragraph but fails to approve or disapprove the site at the end of such six-month period, the site shall be considered to be approved.

(d) Any activity of the President or the Secretary under this section shall be considered a preliminary decisionmaking activity and shall not be subject to the National Environmental Policy Act of 1969 (83 Stat. 852).

SITE CHARACTERIZATION

SEC. 404. (a) The Secretary shall carry out in accordance with this section appropriate site characterization activities at each site approved under section 403.

(b)(1) Before proceeding to sink shafts at any site, the Secretary shall submit for such site to the Commission, to the Governor of the State in which the site is located, and to the Tribal Council of any affected Indian tribe, for their review and comment—

(A) an environmental assessment of the nonradiological impacts of the site characterization activities planned for such site, and a discussion of alternative activities for purposes of site characterization which may be undertaken to avoid such impacts;

(B) a general plan for site characterization activities to be conducted at such site, which plan shall include—

(i) a description of the site;

(ii) a description of the site characterization activities, including the extent of planned excavations, plans for any onsite testing of radioactive material or nonradioactive material, investigation activities that may affect the ability of the site to isolate radioactive waste and spent fuel, and provisions to control likely adverse, safety-related impacts from site characterization activities;

(iii) plans for decontaminating and decommissioning the site if it is determined unsuitable for application for licensing as a repository; and

(iv) any other information required by the Commission; and

(C) proposals describing the possible form of packaging for the waste material and spent fuel that would be emplaced in the repository.

(2) During the conduct of site characterization activities at a site, the Secretary shall report to the Commission, to the Governor of the State in which the site is located, and to the Tribal Council of any affected Indian tribe, on the nature and extent of such activities and the information developed from such activities.

(c) The Secretary shall conduct such tests as the Secretary deems necessary to provide the necessary data for an application for a construction authorization by the Commission for a repository at the site and for compliance with the National Environmental Policy Act of 1969 (83 Stat. 852). The Secretary shall report to the Commission, to the Governor of the State in which the site is located, and to the Tribal Council of any affected Indian tribe, on the tests conducted at a site pursuant to this subsection and on the information developed from such tests.

(d)(1) In conducting site characterization activities or tests pursuant to subsection (c)—

(A) the Secretary may not use radioactive materials at a site unless the Commission concurs that such use is necessary to provide data for the submission of an application for a construction authorization for a repository at the site;

(B) if radioactive materials are placed in a site, the Secretary shall place the smallest quantity necessary to determine the suitability of the site for a repository, but in no event more than the curie equivalent of ten metric tons of spent fuel; and

(C) any radioactive material used or placed on a site shall be fully retrievable: *Provided, however,* That the restrictions of subparagraphs (1)(A) and (1)(B) shall not apply to the test and evaluation facility authorized under section 407.

(2) If characterization activities are terminated at a site for any reason, the Secretary shall remove any nuclear waste, spent fuel, or other radioactive materials at or in the site as promptly as practicable.

SITE APPROVAL AND CONSTRUCTION AUTHORIZATIONS

SEC. 405. (a) Prior to submitting a recommendation to the President for approval of a site, the Secretary shall hold public meetings in the vicinity of the site to inform the residents of the area in which the site is located of the determination of the Secretary and to receive their comments. Upon completion of the meetings, the Secretary may submit to the President a recommendation that the President approve the site for the development of a repository.

(b) Not later than January 1, 1985, the President shall select at least one site that the President considers qualified for application for license as a repository.

(c) The Secretary shall submit to the Commission an application for authorization to construct a repository at a site selected by the President within ninety days after the date on which the President selects a site under subsection (b). The Secretary shall provide a copy of such license application to the Governor of the State in which the site is located and to the Tribal Council of any affected Indian tribe.

(d) Not later than eighteen months after the date on which an application is submitted under subsection (c), the Commission shall submit to the Congress a report describing the proceedings on the application undertaken through such date, including a description of—

(1) major unresolved safety issues, and the Secretary's explanation of design and operation plans for resolving such issues;

(2) matters of contention regarding the application; and

(3) any Commission actions regarding the granting or denial of the application.

(e) The Commission shall consider a license application for the construction of a repository in accordance with the laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the first such application not later than January 1, 1988.

(f) The Commission shall consider an application for authorization to construct a repository in accordance with the laws applicable to such applications, except that—

(1) the Commission need only consider as alternate sites for the proposed facility those sites approved for site characterization under section 403(c), and

(2) the Commission shall issue a final decision approving or disapproving the first such application not later than January 1, 1988.

SEC. 406. The Secretary, the Commission, and other appropriate Federal officials shall take such actions as they consider necessary, consistent with the protection of the public health, safety, and the environment, to achieve operational status of a repository licensed under section 405(e) as soon thereafter as possible.

TEST AND EVALUATION FACILITY

SEC. 407. (a) Not later than January 1, 1983, the Secretary shall transmit to the Congress a proposal for at least one test and evaluation facility for the purpose of developing the packaging, handling, and emplacement technology for solidified high-level radioactive waste and spent fuel from civilian nuclear activities needed to further the demonstration of disposal of such waste and spent fuel. The proposal shall include site-specific designs, specifications and cost estimates adequate to solicit bids for the construction of an initial facility, and a schedule for the construction of a facility, consistent with the objective of achieving facility operation not later than January 1, 1988.

(b) The facility shall be designed to—

(1) be constructed and operated at a site approved by the President for site characterization in accordance with section 403(c), and in accordance with applicable site characterization requirements, as provided in section 404, to preserve the availability of the site for use for a repository;

(2) accept a total of not more than three hundred packages of solidified high-level radioactive waste and spent fuel;

(3) permit continuous monitoring, management, and maintenance of the solidified high-level radioactive waste and spent fuel to be emplaced in the facility;

(4) accept waste and spent fuel packages incorporating multiple barrier design; and

(5) permit full retrievability of the waste and spent fuel to be emplaced in the facility.

(c) In formulating the proposal, the Secretary shall consult with the Commission and the Environmental Protection Agency, and shall transmit their comments on the final proposal to the Congress together with the proposal.

(d)(1) Preparation and transmittal of the proposal to the Congress is not a major Federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(C) of the National Environmental Policy Act of 1969 (83 Stat. 852), but an environmental assessment shall be prepared on the proposal to accompany such transmittal.

(2) When Congress authorizes construction of the facility, the requirements of the National Environmental Policy Act shall apply, except that any environmental impact statement in connection with such facility need not consider any alternative to the design criteria set forth in subsection (b), as may have been amended by such subsequent congressional authorization.

(e) Notwithstanding any other provision of law, the test and evaluation facility authorized under this section shall not be subject to a license by the Commission: *Provided, however*, That the Secretary shall obtain the concurrence of the Commission in the siting, design, construction, and operation of the facility.

NATIONAL SITE SURVEY PROGRAM

SEC. 408. (a) The Secretary and the United States Geological Survey shall conduct a national site survey program, to be completed not later than January 1, 1986, for the purpose of identifying sites that may be suitable for site characterization for a repository in addition to those recommended by the Secretary under section 403(b).

(b) The national site survey program established by subsection (a) shall include every State that may contain acceptable sites for a repository.

(c) The Secretary shall use the results of the national site survey program established by subsection (a) in identifying and recommending sites for site characterization leading to the development of a repository in addition to the repository licensed in accordance with section 405: *Provided*, That in recommending such additional sites for site characterization, the Secretary shall consider the cost and impact of transporting to the repository site the solidified high-level radioactive waste and spent fuel to be disposed of in the repository, and the advantages of geographical distribution in the siting of repositories.

TITLE V—LONG-TERM STORAGE OF HIGH-LEVEL RADIOACTIVE WASTE AND SPENT FUEL FROM CIVILIAN NUCLEAR ACTIVITIES

SEC. 501. Within one year after the date of enactment of this Act, the Secretary shall transmit to the Congress a proposal for a system consisting of at least one facility for the long-term, retrievable, monitored storage of solidified high-level radioactive waste and spent fuel resulting from civilian nuclear activities. The long-term storage of solidified high-level radioactive waste and spent fuel in such facilities shall not constitute an alternative to the disposal of such waste or spent fuel in a repository. Such facilities shall be designed to—

(a) accommodate spent fuel and solidified high-level radioactive waste from civilian nuclear activities;

(b) permit continuous monitoring, management, and maintenance of the spent fuel and solidified high-level radioactive waste for the foreseeable future;

(c) provide for the ready retrieval of any spent fuel and solidified high-level radioactive waste; and

(d) safely contain such solidified high-level radioactive waste and spent fuel so long as may be necessary, by means of maintenance, including, but not limited to, replacement as necessary, of such facility.

SEC. 502. The proposal shall include—

(a) the general description, cost estimates, and construction schedule for a system;

(b) site-specific designs, specifications, and cost estimates adequate to solicit bids for the construction of an initial facility within the system which will demonstrate the feasibility of long-term, retrievable, monitored storage of spent fuel and solidified high-level radioactive waste; and

(c) a plan for integrating such long-term, retrievable, monitored storage facilities with the interim spent fuel storage facilities and repositories authorized by titles III and IV of this Act.

SEC. 503. In formulating the proposal, the Secretary shall consult with the Commission and the Environmental Protection Agency, and shall transmit their comments on the final proposal to the Congress together with the proposal.

SEC. 504. (a) Preparation and transmittal of the proposal to the Congress is not a major Federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(C) of the National Environmental Policy Act of 1969 (83 Stat. 852), but an environmental assessment shall be prepared on the proposal to accompany such transmittal based upon available information regarding alternative technologies for waste storage.

(b) When Congress authorizes construction of the initial facility, the requirements of the National Environmental Policy Act shall apply, except that any environmental impact statement in connection with such facility need not consider any alternative to the design criteria set forth in section 501 of this Act as may have been amended by such subsequent congressional authorization.

(c) Any facility authorized under this title shall be subject to a license under section 202(3) of the Energy Reorganization Act of 1974 (88 Stat. 1233), except that in its consideration of the application filed by the Secretary for the initial facility, the Commission may not consider any alternative to the design criteria set forth in section 501 of this Act but shall comply with the requirements of the licensing process as otherwise provided by law.

TITLE VI—FINANCIAL ARRANGEMENTS

SEC. 601. (a) There is hereby established in the Treasury of the United States a separate account to provide for costs directly related to (1) the acquisition, lease or construction, and operation of Federal away-from-reactor interim storage facilities for spent fuel in accordance with title III of this Act; (2) the construction and operation of repositories for the disposal of such spent fuel or solidified high-level radioactive waste from civilian nuclear activities in accordance with title IV of this Act; (3) the construction and operation of one or more test and evaluation facilities in accordance with title IV of this Act; (4) the construction and operation of facilities for the long-term storage of such spent fuel or solidified high-level radioactive waste in accordance with title V of this Act; (5) the related handling and transportation of such spent fuel or waste. Amounts appropriated under section 308 or otherwise appropriated to the Secretary to carry out any of the purposes of titles III, IV, V, and VI of this Act, all charges under section 303, receipts derived from the sale of any reprocessed fuel, all fees collected under section 603, and the proceeds from any obligations issued pursuant to section 602 of this title shall be deposited into the account.

(b) To the extent or in such amounts as are provided in appropriations Acts, the Secretary may draw on such account to carry out the purposes of titles III, IV, V, and VI of this Act: *Provided,* That the Secretary shall not construct or acquire any major nuclear waste facility unless the specific expenditure of funds for the initiation of such construction or acquisition is explicitly approved in an appropriation Act.

SEC. 602. (a) To carry out the purposes of this Act the Secretary may borrow money from the Treasury of the United States in amounts provided in appropriation Acts. The Secretary and the Secretary of the Treasury shall agree on terms, maturities, and conditions of the obligations, but the maturities may not be more than thirty years. The Secretary may redeem the obligations before maturity. The Secretary of the Treasury shall decide the interest rate of the obligations considering the average market of outstanding marketable obligations of the United States Government of comparable maturities during the month before the obligations are issued. The interest payments on such obligations may be deferred with the approval of the Secretary of the Treasury but any interest payment so deferred shall bear interest. Such obligations shall be issued in amounts and at prices approved by the Secretary of the Treasury. The Secretary of the Treasury shall purchase any obligations of the Secretary issued under this section and for this purpose the Secretary of the Treasury is authorized to use as a public debt transaction of the United States the proceeds from the sale of any securities issued under the Second Liberty Loan Bond Act. Securities may be issued under that Act to purchase obligations from the Secretary under this section.

(b) Appropriations made available pursuant to section 307 of this Act and any other appropriations made to the Secretary to carry out the purposes of titles III, IV, V, and VI of this Act shall be repaid into the General Fund of the Treasury out of the account, together with interest until the date of repayment at a rate determined by the Secretary of the Treasury taking into consideration the average market on long-term obligations of the United States during the fiscal year in which appropriations are made. The Secretary shall repay such appropriation together with interest within thirty years from the time at which such appropriations become available for expenditure after the date of enactment of this Act, and no appropriations to the Secretary are authorized to carry out the purposes of titles III, IV, V, and VI of this Act unless the amounts appropriated are deposited into the account established in section 601(a).

SEC. 603. (a) There is hereby imposed a mandatory fee in the amount of 1.0 mil per kilowatt-hour on electricity generated by civilian nuclear powerplants and sold on or after the date ninety days after the date of enactment of this Act. Such fee shall be for the purpose of paying the costs to be incurred by the Federal Government for the long-term storage and permanent disposal of solidified high-level radioactive waste and spent fuel from civilian nuclear activities.

(b) The fee imposed by subsection (a) shall be collected by the person owning and operating each civilian nuclear powerplant and shall be paid to the Treasury of the United States and deposited in the separate account established by section 601.

(c) Not later than ninety days after the date of enactment of this Act, the Secretary shall establish procedures for the collection and payment of the fee established by subsection (a).

TITLE VII—STATE PARTICIPATION IN THE DEVELOPMENT OF REPOSITORIES AND RETRIEVABLE, MONITORED STORAGE FACILITIES FOR SOLIDIFIED HIGH-LEVEL RADIOACTIVE WASTE AND SPENT FUEL

SEC. 701. (a) The Secretary shall identify the States with one or more potentially acceptable sites for a repository or for a retrievable, monitored storage facility for solidified high-level radioactive waste or spent fuel. Within ninety days of such identification, or within ninety days of enactment of this Act, the Secretary shall notify the Governor, the State legislature, and the Tribal Council of any affected Indian tribe in any affected State of the potentially acceptable sites within such State.

(b) Each affected State and affected Indian tribe notified under subsection (a) shall have the right to participate in a process of consultation and concurrence, based on public health and safety and environmental concerns, in all stages of the planning, siting, development, construction, and operation of a repository or a retrievable, monitored storage facility that is required to be licensed by the Commission. Upon the approval of a site for site characterization for such a repository, or upon the designation of a site for such a retrievable, monitored storage facility, the Secretary shall promptly enter into negotiations with each such State and Indian tribe to establish a cooperative agreement under which the State or Indian tribe may exercise such right. Public participation in the negotiation of such agreement shall be provided for and encouraged by the Secretary, the States and the Indian tribes. The Secretary, in cooperation with the States and Indian tribes, shall develop and publish minimum guidelines for public participation in such negotiations, but the adequacy of such guidelines or any failure to comply with these guidelines shall not be a basis for judicial review.

(c) The cooperative agreement may include, but need not be limited to, the sharing in accordance with applicable law of all technical and licensing information, the utilization of available expertise, the facilitating of permitting procedures, joint project review, and the formulation of joint surveillance and monitoring arrangements to carry out applicable Federal and State laws. Such cooperative agreement shall provide procedures for negotiating and resolving objections of the State or Indian tribe in any stage of the planning, siting, development, construction, or operation of such a facility within the State: *Provided, however,* That any such agreement shall not affect the Nuclear Regulatory Commission's authority under existing law.

(d) For the purpose of this part of this title, "process of consultation and concurrence" means a methodology by which the Secretary (A) keeps the State or affected Indian tribe fully and currently informed about the aspects of the project related to any potential impact on the public health and safety, (B) solicits, receives, and evaluates concerns and objections of the State or affected Indian tribe with regard to such aspects of the project on an ongoing basis, and (C) works diligently and cooperatively to resolve, through arbitration or other appropriate mechanisms, such concerns and objections.

(e) The Secretary and the State or affected Indian tribe shall seek to conclude the agreement required by subsection (b) not later than one year after the date of notification under section (a). The Secretary shall report to the Congress annually thereafter on the status of the agreement approved under subsection (c). Any report to the Congress on the status of negotiations under subsection (b) of the agreement under subsection (c) by the Secretary shall be accompanied by comments solicited by the Secretary from the State or affected Indian tribe.

(f)(1) The Secretary shall notify the Governor, the State legislature, and the Tribal Council of any affected Indian tribe in an affected State at least ninety days prior to submitting an application to the Commission for authorization to construct a repository or retreivable, monitored storage facility of the Secretary's intention to file such application.

(2) If at any time after the Governor or an affected Indian tribe has received the notice required under paragraph (1), but no later than ninety days after receipt of such notice, the Governor or the Indian tribe notifies the Secretary in writing of objections to the proposed repository or retrievable, monitored storage facility, the Secretary shall promptly transmit such objections together with the Secretary's comments and recommendations to the Congress.

(3) If the Governor or the Indian tribe has filed objections in accordance with paragraph (2), the Secretary shall not submit such an application and shall suspend further site-specific activities on the proposed repository or retrievable, monitored storage facility if during the sixty-day period of continuous session following submittal to Congress of the objections, either House of Congress passes a resolution pursuant to section 703 stating in substance that the proposal for the repository or retrievable, monitored storage facility does not sufficiently address State and local concerns to permit the Secretary to apply to the Commission for an authorization to construct the facility.

SEC. 702. (a) For the purpose of this Act (1) continuity of session is broken only by an adjournment of Congress sine die; and (2) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of any period of time in which Congress is in continuous session.

(b) Sections 702 through 706 of this Act are enacted by Congress (1) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such they are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by section 703 of this Act; and they supersede other rules only to the extent that they are inconsistent therewith; and (2) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of that House.

SEC. 703. For the purposes of this Act "resolution" means only a resolution of either House of Congress, the matter after the resolving clause of which is as follows: "That the   believes that the proposed development of a repository or retrievable, monitored storage facility at   within the State of   , which is the basis of objections transmitted to Congress by the Secretary of Energy on   , 19   does not sufficiently address State and local concerns to permit the Secretary to apply to the Nuclear Regulatory Commission for an authorization to construct such repository or retrievable, monitored storage facility, the blank spaces therein being appropriately filled.

SEC. 704. (a) No later than the first day of session following the day on which objections by a State or Indian tribe are transmitted to the House of Representatives and the Senate under section 601(f), a resolution, as defined in section 703, shall be introduced (by request) in the House by the chairman of the committee to which the report is referred, or by a Member or Members of the House designated by such chairman; and shall be introduced (by request) in the Senate by the chairman of the committee to which the report is referred, or by a Member or Members of the Senate designated by such chairman.

(b) A resolution with respect to a proposed facility which is the basis of such objections shall be referred to the appropriate committees of the House and Senate (and all resolutions with respect to the same report shall be referred to the same committee) by the President of the Senate or the Speaker of the House of Representatives, as the case may be. The committee shall make its recommendations to the House of Representatives or the Senate, respectively, within forty-five calendar days of continuous session of Congress following the date of such resolution's introduction.

SEC. 705. If the committee to which is referred a resolution introduced pursuant to subsection (a) of section 604 (or, in the absence of such a resolution, the first resolution introduced with respect to the proposed facility which is the basis of such objections, has not reported such resolution or identical resolution at the end of forty-five calendar days of continuous session of Congress after its introduction, such committee shall be deemed to be discharged from further consideration of such resolution and such resolution shall be placed on the appropriate calendar of the House involved.

SEC. 706. (a) When the committee has reported, or has been deemed to be discharged (under section 705) from further consideration of, a resolution with respect to a reorganization plan, it is at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) for any Member of the respective House to move to proceed to the consideration of the resolution. The motion is highly privileged and is not debatable. The motion shall not be subject to amendment, or to a motion to postpone, or a motion to proceed to the consideration of other business. A motion to reconsider the vote by which the motion is agreed to or disagreed to shall not be in order. If a motion to proceed to the consideration of the resolution is agreed to, the resolution shall remain the unfinished business of the respective House until disposed of.

(b) Debate on the resolution, and on all debatable motions and appeals in connection therewith, shall be limited to not more than ten hours, which shall be divided equally between individuals favoring and individuals opposing the resolution. A motion further to limit debate is in order and not debatable. An amendment to, or a motion to postpone, or a motion to proceed to the consideration of other business, or a motion to recommit the resolution is not in order. A motion to reconsider the vote by which the resolution is agreed to or disagreed to shall not be in order.

(c) Immediately following the conclusion of the debate on the resolution with respect to a reorganization plan, and a single quorum call at the conclusion of the debate if requested in accordance with the rules of the appropriate House, the vote on final approval of the resolution shall occur.

(d) Appeals from the decisions of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to a resolution with respect to a reorganization plan shall be decided without debate.

SEC. 707. In considering any objections by a State or Indian tribe submitted to the Congress pursuant to this title, the Congress may obtain the views and comments of the Nuclear Regulatory Commission on such objections. The provision of views by the Commission shall not be construed as binding the Commission with respect to any licensing action pertaining to the facility which is the subject of such objections.

SEC. 708. The passage of a resolution by the Congress pursuant to this title shall in no way be considered as binding with respect to any licensing action of the Nuclear Regulatory Commission pertaining to the facility which is the subject of such resolution.

97TH CONGRESS
1ST SESSION

S. 637

To establish a program for Federal storage of spent fuel from civilian nuclear powerplants, to set forth a Federal policy and initiate a program for the disposal of nuclear waste from civilian activities, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 5 (legislative day, FEBRUARY 16), 1981

Mr. JOHNSTON (for himself and Mr. JACKSON) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To establish a program for Federal storage of spent fuel from civilian nuclear powerplants, to set forth a Federal policy and initiate a program for the disposal of nuclear waste from civilian activities, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Waste Policy Act".

TITLE I—FINDINGS AND PURPOSES

FINDINGS

SEC. 101. The Congress finds and declares that—

(a) a reliable system adequate to provide sufficient electrical energy to meet the Nation's current and anticipated needs is an essential part of a comprehensive national energy policy and is vital to national security and public welfare;

(b) an adequate electrical system requires a diversified base of primary energy sources in order to avoid excessive reliance upon any single alternative energy source;

(c) a diverse base of primary energy sources can be achieved only if each available source competes on an equal footing in decisions on the siting and construction of facilities for generating commercial electric power;

(d) nuclear energy can—

(1) make a significant contribution to national supplies of electricity;

(2) offer site-specific advantages in environmental impact, cost, and fuel availability over other primary sources of energy; and

(3) help reduce United States dependence on insecure sources of foreign oil;

(e) lack of an effective Federal policy for the interim storage of spent fuel and disposal of radioactive waste from civilian nuclear activities unreasonably burdens the choice of nuclear energy as an alternative primary energy source in decisions on siting and construction and operation of powerplants and unduly constrains efforts to establish a diverse base of primary energy sources;

(f) the Federal Government has the responsibility for the interim storage of spent fuel from civilian nuclear powerplants and the disposal of high-level radioactive waste from civilian nuclear activities in order to protect the public health and safety and provide for the common defense and security;

(g) the costs associated with the storage of spent fuel and the disposal of radioactive waste from civilian nuclear activities should, to the greatest extent practicable, be borne by the direct beneficiaries of such activities and should be considered in the selection or rejection of nuclear energy over alternative primary energy sources; and

(h) the technology exists and is under development which would provide reasonable assurance that spent fuel and high-level radioactive waste can be safely disposed of and that disposal facilities for spent fuel and high-level radioactive waste can be available when needed;

PURPOSES

SEC. 102. The purpose of this Act is to—

(a) assume the Federal responsibility for the acquisition and interim storage of spent fuel from civilian nuclear powerplants and for the disposal of high-level radioactive waste from civilian nuclear activities;

(b) establish a definite Federal policy for the disposal of high-level radioactive waste from civilian nuclear activities;

(c) authorize the Secretary to—

(1) acquire or construct at least one facility for the interim storage of spent fuel from civilian nuclear powerplants;

(2) select a technology and design for a system comprised of at least one Federal facility for the disposal of high-level radioactive waste generated by civilian nuclear activities and to select a site and design for the first component of such a system;

(3) provide for the construction, operation, and maintenance of nuclear waste storage and disposal facilities described in paragraphs (1) and (2);

(d) accelerate the examination and consideration of alternative technologies for the disposal of nuclear waste; and

(e) provide for improved consultation and cooperation between the Federal Government and States and Indian tribes in the siting of facilities for the interim storage of spent fuel from civilian nuclear powerplants and facilities for the disposal of high-level radioactive waste from civilian nuclear activities.

TITLE II—DEFINITIONS

SEC. 201. As used in this Act the term—

(1) "atomic energy defense activities of the Secretary" includes those activities and facilities of the Department of Energy carrying out the functions of—

(i) naval reactors' development and propulsion;

(ii) weapons activities, verification, and control technology;

(iii) defense materials production;

(iv) inertial confinement fusion;

(v) defense waste management; and

(vi) defense nuclear materials, security, and safeguards,

all as included in the Department of Energy appropriations account in any fiscal year for such functions.

(2) "civilian nuclear powerplant" means a utilization or production facility for the generation of commercial power, as that phrase is used in the Atomic Energy Act of 1954, which is or will be licensed under such Act;

(3) "Commission" means the Nuclear Regulatory Commission;

(4) "disposal" means the long-term isolation of material, including long-term monitored storage which permits retrieval of the material stored;

(5) "environmental impact statement" means any document prepared pursuant to or in compliance with the requirements of section 102(2)(c) of the National Environmental Policy Act of 1969 (83 Stat. 852);

(6) "Governor" means the Governor of a State, or successors to the Governor, during their respective terms of office, or their designees;

(7) "Indian tribe" means an Indian tribe, as defined in the Indian Self-Determination and Education Assistance Act (Public Law 93-638);

(8) "permanent disposal" means the long-term isolation of radioactive waste for at least such period of time as the Commission determines is necessary in order that the radioactivity, heat generation, and toxicity of such waste does not exceed the radioactivity,

heat generation, and toxicity of naturally occurring uranium;

(9) "repository" means a facility for the disposal of high-level waste, transuranic contaminated waste, or spent nuclear fuel, whether or not such facility is designed to permit the subsequent recovery of such material, except for facilities to be used exclusively for research and development purposes and containing an insignificant amount of such material;

(10) "safe repository" means any underground facility for the permanent disposal of transuranic waste, high-level radioactive waste, spent nuclear fuel or any combination of such wastes or fuel, whether or not such facility is designed to permit the subsequent recovery of the materials placed in the repository, and whether or not such safety is achieved solely by the characteristics of the medium in which the facility is located or by a combination of such characteristics with appropriate engineered structural containment, waste form and packaging, monitoring, and maintenance of such facility;

(11) "Secretary" means the Secretary of Energy;

(12) "spent fuel" means nuclear fuel that has been irradiated in and recovered from a civilian nuclear powerplant;

(13) "State" means any State of the United States, the District of Columbia, and, subject to the provisions of Public Law 96-205, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States; and

(14) "test disposal" means the emplacement in a repository of an amount in excess of one hundred canisters of spent nuclear fuel, high-level wastes or transuranic contaminated waste.

TITLE III—INTERIM STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS

SEC. 301. (a) It is the policy of the Federal Government to provide, as soon as possible, an assured and predictable capacity for the interim storage of spent fuel from civilian nuclear powerplants.

(b) The policy under subsection (a) shall provide for—

(1) maximizing, by utilization of available spent fuel pools to the maximum practical extent, the storage of such spent fuel at the site of each civilian nuclear powerplant; and

(2) the establishment of a federally owned and operated system for the interim storage of spent fuel at one or more away-from-reactor facilities.

SEC. 302. The Secretary, the Commission and other appropriate Federal officials shall take such actions as they consider necessary to encourage and expedite the use of available storage at the site of such civilian nuclear powerplant consistent with—

(a) the protection of the public health and safety;

(b) economic considerations;

(c) continued operation of the powerplant;

(d) the sensibilities of the population surrounding such powerplant; and

(e) otherwise applicable law.

SEC. 303. (a) The Secretary, consistent with such criteria as he prescribes under the policy set forth in section 301, shall offer to enter into, and may enter into, contracts with persons owning, or planning to own, civilian nuclear powerplants. Those contracts shall provide that the Federal Government will (1) take title to spent fuel from the powerplants, (2) transport the spent fuel to federally owned and operated interim away-from-reactor storage facilities and store such fuel in the facilities, and (3) dispose of waste products associated with such spent fuel.

(b) Nothing in this Act authorizes the Secretary to take title to spent fuel, transport spent fuel, or dispose of spent fuel or the waste products associated with spent fuel from a nuclear powerplant not located within the United States.

SEC. 304. A contract entered into under section 303 shall provide—

(a) for a one-time payment at the time the Federal Government acquires the spent fuel of a charge per unit of spent fuel, as such unit is defined by the Secretary, which charge is determined by the Secretary to be adequate to cover—

(1) the cost of transportation of such spent fuel;

(2) the proportion of the costs of the construction and the operation, maintenance, and decommissioning of Federal interim away-from-reactor storage facilities which proportion is associated with such spent fuel; and

(3) a surcharge to reflect the cost of permanent disposal of high-level radioactive waste associated with such spent fuel;

(b) for the retention by the owner of such spent fuel of a nontransferable right to the value of the remaining fuel resource less the costs of recovery, as determined at the time of recovery. The right ends when the Federal Government—

(1) takes action resulting in the recovery of the remaining fuel resource, and

(2) gives to the owner of the right an amount of money equal to the value of the recovered fuel less the costs of recovery;

(c) that title to the spent fuel together with all rights to such fuel, except as otherwise provided in this Act, passes to the Secretary at the site of the powerplant at the time the Secretary takes possession of the spent fuel;

(d) that the contract becomes effective when the interim away-from-reactor storage facility is available as determined by the Secretary by notice in the Federal Register; and

(e) for adjustment and recalculation of the one-time payment established under subsection (a) of this section and assessment of any difference to be paid or reimbursed at the time such spent fuel or associated radioactive waste is placed in permanent disposal.

SEC. 305. (a) The Secretary shall provide notice of intent to enter into such contracts by publishing notice in the Federal Register not later than one hundred and eighty days after the date of the enactment of this Act. Such notice shall contain such information as the Secretary considers appropriate concerning proposed terms and conditions of such contracts.

(b) The Secretary shall establish the one-time payment charge per unit of spent fuel required by subsection 304(a) on an annual basis, based on calculation of the costs and surcharge listed in subsection 304(a), and shall publish such annual one-time payment charge and the calculation thereof in the Federal Register. Each one-time payment charge shall become effective thirty days after publication and shall remain effective for a period thereafter of twelve months as the charge for the costs and surcharge listed in subsection 304(a) for any spent fuel, title to which is transferred to the Federal Government during that twelve-month period.

SEC. 306. (a) The Secretary shall construct or acquire at least one away-from-reactor facility for the interim storage of spent fuel from civilian nuclear powerplants. The facilities shall—

(1) be made available in adequate capacity and in a timely manner to accommodate all spent fuel for which commitments have been made pursuant to section 303 of this Act; and

(2) be subject to a license under the provisions of section 202(3) of the Energy Reorganization Act of 1974 (88 Stat. 1233).

(b) The Secretary, in providing for the transportation of spent fuel under this Act, shall utilize by contract private industry to the fullest extent possible in each aspect of such transportation. The Secretary shall use direct Federal services for such transportation only upon a determination of the Secretary of Transportation, in consultation with the Secretary, that private industry is unable or unwilling to provide such transportation services at reasonable cost. The authority of the Secretary to enter into contracts under this section shall be limited to the extent and in such amounts as are provided in appropriations Acts.

(c) The Secretary and the Commission, on a continuing basis, shall analyze and make projections of the availability when needed of spent fuel transportation casks required to support Federal transportation requirements pursuant to subsection (b). The Secretary and the Commission are authorized and directed to take such actions as the Secretary and the Commission, respectively, deem necessary and appropriate to ensure the timely availability when needed of such spent fuel transportation casks.

SEC. 307. When an interim away-from-reactor storage facility is available, the Secretary shall take possession of and transport to a designated storage facility any spent fuel covered by a contract made under section 303 of this Act. The Secretary shall take this action within thirty days after the date on which the owner of such spent fuel provides notice in writing to the Secretary that such spent fuel is available.

SEC. 308. Funds made available to the Secretary for the purpose of—

(a) acquiring plant and capital equipment or land; or

(b) for planning, construction, or modification of facilities,

to make available facilities for the interim storage of spent fuel from civilian nuclear powerplants away from the reactor under any law making appropriations of funds or authorizations for appropriations of funds for the fiscal year ending September 30, 1979, the fiscal year ending September 30, 1980, and the fiscal year ending September 30, 1981, including funds authorized and appropriated for Project 79-1-p (away-from-reactor spent nuclear fuel storage capacity) in any legislation authorizing appropriations for the Department of Energy, shall be available to carry out the purposes of section 306.

SEC. 309. (a) In carrying out the provisions of sections 301 through 308 with regard to any facility for the interim storage of spent fuel from civilian nuclear powerplants which the Secretary is authorized by section 306(a) to construct or acquire, the Secretary shall—

(1) as soon as practicable, but not later than 90 days after enactment of this section, notify in writing the Governor and the legislature of any State in which

is located a potentially acceptable site for such a facility or an existing facility potentially suitable for interim storage of spent fuel of the Secretary's intention to investigate that site or facility;

(2) during the course of investigation of such site or facility, keep the Governor and the legislature currently informed of the progress of work and results of the investigation;

(3) at the time of selection by the Secretary of any site or existing facility, but prior to undertaking any site-specific work or alterations, promptly notify the Governor and the legislature in writing of such selection; and

(4) throughout the course of any subsequent work on that site or existing facility, furnish the Governor all relevant information on a current basis and provide him with the opportunity for review and comment from time to time.

(b) If within a reasonable time after the Governor has received notice of selection required by subsection (a)(3), the Governor notifies the Secretary in writing of his objections to the facility, the Secretary shall suspend further work on such facility and promptly transmit the Governor's objections together with the Secretary's comments and recommendations to the President.

(c) Unless within ninety days after receipt of the Secretary's notification under subsection (b) the President determines that such facility is essential to the national interest, the Secretary shall terminate activities specific to the facility. Such determination shall not be subject to judicial or administrative review.

(d) During the regulation and monitoring of the facility, the Governor or his designee shall have the right to be currently informed of all relevant facts and matters, and shall have access to all relevant documents, and have the right to review and comment on such matters from time to time.

SEC. 310. Section 202(3) of the Energy Reorganization Act of 1974 is amended to read:

"(3) Facilities used primarily for the receipt and storage of high-level radioactive wastes or spent fuel resulting from activities licensed under such Act or spent fuel from foreign reactors transferred under a subsequent arrangement authorized under such Act.".

SEC. 311. Transportation of spent fuel under section 303(a) shall be subject to licensing and regulation by the Commission as provided for transportation of commercial spent fuel under existing law.

TITLE IV—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE RESULTING FROM CIVILIAN NUCLEAR ACTIVITIES

Sec. 401. It is the policy of the Federal Government to provide, consistent with section 301, a Federally owned and operated system for the permanent disposal of all high-level radioactive waste resulting from civilian nuclear activities.

Sec. 402. Within one year after the date of the enactment of this Act, the Secretary shall transmit to the Congress a proposal for the construction of one or more safe repositories for the permanent disposal of high-level radioactive waste resulting from civilian nuclear activities. Such repositories shall be designed to—

(a) accommodate spent fuel from civilian nuclear activities without reprocessing, as well as the high-level radioactive waste from other civilian nuclear activities, including reprocessing of such spent fuel if such reprocessing is undertaken in the United States;

(b) permit continuous monitoring, management, and maintenance of the spent fuel and high-level radioactive waste for the foreseeable future; and

(c) provide for the ready retrieval of any spent fuel and high-level radioactive waste for further processing or disposal by an alternative method.

Sec. 403. The proposal shall include—

(a) the general description, cost estimates, and construction schedule for a permanent disposal system which shall be initially designed for a capacity adequate at a minimum to receive in a timely manner the high-level radioactive waste produced by all ongoing civilian nuclear activities and the spent fuel from the operation of all civilian nuclear powerplants for which any application for any Federal license or permit has been received prior to the date of the enactment of this Act; and

(b) site-specific designs, specifications, and cost estimates adequate to solicit bids for the construction of an initial safe repository within the system which will demonstrate the feasibility of permanent disposal of spent fuel and high-level radioactive waste in a manner which permits retrieval of such fuel and waste and which has capacity of at least one thousand spent-fuel rods along with a volume of processed high-level radioactive waste from civilian activities limited to the amount sufficient to accomplish such demonstration.

SEC. 404. In formulating the proposal, the Secretary shall consult with the Commission and the Environmental Protection Agency, and shall transmit their comments on the final proposal to the Congress together with the proposal.

SEC. 405. (a) Preparation and transmittal of the proposal to the Congress is not a major Federal action significantly affecting the environment within the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969 (83 Stat. 852) but an environmental assessment shall be prepared on the proposal to accompany such transmittal based upon available information regarding alternative technologies for waste disposal.

(b) When Congress authorizes construction of the initial safe repository, the requirements of the National Environmental Policy Act shall apply, except that any environmental impact statement in connection with such facility need not consider any alternative to the design criteria set forth in section 402 of this Act as may have been amended by such subsequent congressional authorization.

(c) Any facility authorized under this title shall be subject to a license under section 202(3) of the Energy Reorganization Act of 1974 (88 Stat. 1233), except that in its consideration of the application filed by the Secretary for the initial facility, the Commission may not consider any alternative to the design criteria set forth in section 402 of this Act but shall comply with the requirements of the licensing process as otherwise provided by law.

(d)(1) Beginning the first fiscal year after the commencement of construction of any safe repository under section 402 the Secretary shall, to the extent provided in appropriations Acts, and subject to the provisions of this subsection, make annual impact aid payments to any appropriate local government with respect to such repository—

(A) which repository is located within the jurisdictional boundaries of such government,

(B) which is determined by the Secretary to have a substantial impact on such government, and

(C) where the construction of such repository, or any modification thereof, is completed after the effective date of this Act, and, in the case of a modification of an existing facility, such modification substantially increases the capacity of such repository.

(2) The Secretary shall by rule establish a formula under which payments will be made under this subsection for any fiscal year. In developing such formula, the Secretary shall identify, and take into account, the local governmental services provided to the Secretary concerning such repository and the associated costs to the governments providing such services as the result of such repository. The Secretary may enter into negotiations with any appropriate local government in advance of commencement of construction of any safe repository to determine the magnitude of the payments such government would receive under the formula with respect to such repository.

(3) Payments made pursuant to this subsection shall be made solely from the fund established under section 501. The authorization of payments under this subsection is not an obligation of the United States.

(4) No payment may be made under this subsection with respect to any land or interests in land owned by the United States and administered by any Federal agency (other than the Secretary) without regard to how the United States obtained ownership thereof, including lands or interests therein acquired or withdrawn by a Federal agency for purposes of such agency and subsequently made available to the Secretary for such facilities.

(5) As used in this subsection, the term "local government" means a county, parish, township, municipality, or borough existing in the State of Alaska on the date of the enactment of this subsection, or other unit of government below the State which is a unit of general government as determined by the Secretary.

SEC. 406. (a) The Secretary shall continue and accelerate a program of research, development, and investigation of alternative means and technologies for the permanent disposal of high-level radioactive wastes from civilian activities, atomic energy defense activities of the Secretary and Federal research and development activities. Such program shall include examination of various waste disposal options including, but not limited to—

(1) permanent disposal in naturally occurring geologic formations;

(2) advance technologies for the long-term retrievable isolation of nuclear waste;

(3) placement in deep ocean sediments;

(4) placement in very deep drill holes;

(5) placement in a mined cavity in a manner which leads to rock melting;

(6) partitioning of reprocessing waste and transmutation of radionuclides; and

(7) ejection into space.

(b) The programs to be carried out under subsection (a) shall include—

(1) collection of baseline data and environmental information about potential disposal sites;

(2) dissemination of fundamental scientific information;

(3) development, analysis, and validation of predictive models;

(4) extensive, independent, objective review of results by scientific experts, and of proposed facilities and operations through the licensing process;

(5) practical experience, including careful monitoring of radioactive waste isolation systems;

(6) a demonstrated capability to take any needed corrective or mitigating actions; and

(7) an ongoing research and development program to increase the state of knowledge about the disposal of nuclear waste.

(d) The Secretary shall report to the Congress his findings and recommendations resulting from the program authorized by this section, as follows—

(1) as a part of the annual report required by section 657 of the Department of Energy Organization Act (91 Stat. 565) the Secretary shall report concerning the status of the program; and

(2) from time to time, the Secretary shall make recommendations arising from his studies concerning the advisability of modifying or replacing the technology adopted under section 402 of this Act.

TITLE V—FINANCIAL ARRANGEMENTS

SEC. 501. (a) There is hereby established in the Treasury of the United States a separate account to provide for (1) the construction and operation of Federal away-from-reactor interim storage facilities for spent fuel, (2) the disposal of such spent fuel or high-level radioactive waste from civilian nuclear activities, and (3) the handling and transportation of such spent fuel or waste. Amounts appropriated under sections 308 and 502(b) or otherwise appropriated to the Secretary to carry out any of the purposes of titles III and IV (except section 406), all charges under section 304, receipts derived from the sale of any reprocessed fuel, and the proceeds from any obligations issued pursuant to section 502 of this title shall be deposited into the account.

(b) To the extent or in such amounts as are provided in appropriations Acts, the Secretary may draw on such account to carry out the purposes of titles III and IV (except section 406).

SEC. 502. (a) To carry out the purposes of titles III and IV (except section 406) the Secretary may borrow money from the Treasury of the United States in amounts provided in appropriation Acts, but not more than $300,000,000. The Secretary and the Secretary of the Treasury shall agree on terms, maturities, and conditions of the obligations, but the maturities may not be more than thirty years. The Secretary may redeem the obligations before maturity. The Secretary of the Treasury shall decide the interest rate of the obligations considering the average market of outstanding marketable obligations of the United States Government of comparable maturities during the month before the obligations are issued. The interest payments on such obligations may be deferred with the approval of the Secretary of the Treasury but any interest payment so deferred shall bear interest. Such obligations shall be issued in amounts and at prices approved by the Secretary of the Treasury. The Secretary of the Treasury shall purchase any obligations of the Secretary issued under this section and for this purpose the Secretary of the Treasury is authorized to use as a public debt transaction of the United States the proceeds from the sale of any securities issued under the Second Liberty Loan Bond Act. Securities may be issued under that Act to purchase obligations from the Secretary under this section.

(b) There is authorized to be appropriated for the fiscal year ending September 30, 1982, to carry out the purposes of titles III and IV (except section 406) no more than $200,000,000, such amounts to remain available until expended.

(c) Appropriations made available under section 308 and subsection (b) and any other appropriations made to the Secretary to carry out the purposes of titles III and IV (except section 406) shall be repaid into the General Fund of the Treasury out of the account, together with interest until the date of repayment at a rate determined by the Secretary of the Treasury taking into consideration the average market on long-term obligations of the United States during the fiscal year in which such appropriations are made. The Secretary shall repay such appropriation together with interest within thirty years from the time at which such appropriations become available for expenditure after the date of enactment of this Act, and no appropriations to the Secretary are authorized to carry out the purposes of titles III and IV (except section 406) unless the amounts appropriated are deposited into the account established in section 501(a).

TITLE VI—STATE ROLE IN NUCLEAR WASTE REPOSITORY SITING

APPLICATION

SEC. 601. (a) The provisions of this title shall not apply to the transportation, management, or disposal of spent fuel or radioactive waste from atomic energy defense activities of the Secretary or Federal research and development activities.

(b) Any facility established or operated exclusively for the disposal of spent fuel or radioactive waste produced by atomic energy defense activities of the Secretary or Federal research and development activities shall not be subject to the provisions of this title.

COOPERATIVE AGREEMENT

SEC. 602. (a) The Secretary shall identify the States with one or more potentially acceptable sites for a repository, including test disposal of high-level or transuranic wastes. Within ninety days of such identification, or within ninety days of enactment of this Act, the Secretary shall notify the Governor, the State legislature, and the Tribal Council of any affected Indian tribe in any affected State of the potentially acceptable sites within such State.

(b) Each State and Indian tribe notified under subsection (a) shall have the right to participate in a process of consultation and concurrence, based on public health and safety concerns, in all stages of the planning, siting, development, construction, and operation of a repository. The Secretary shall promptly enter into negotiations with each such State and Indian tribe to establish a cooperative agreement under which the State and Indian tribe may exercise such right. Public participation in the negotiation of such agreement shall be provided for and encouraged by the Secretary, the States and the Indian tribes. The Secretary, in cooperation with the States and Indian tribes, shall develop and publish minimum guidelines for public participation in such negotiations, but the adequacy of such guidelines or any failure to comply with these guidelines shall not be a basis for judicial review.

(c) The cooperative agreement may include, but need not be limited to, the sharing in accordance with applicable law of all technical and licensing information, the utilization of available expertise, the facilitating of permitting procedures, joint project review, and the formulation of joint surveillance and monitoring arrangements to carry out applicable Federal and State laws. Such cooperative agreement shall provide procedures for resolving objections of the State and Indian tribe in any stage of the planning, siting, development, construction, or operation of such a facility within the State: *Provided, however,* That any such agreement shall not affect the Commission's authority under existing law.

(d) For the purpose of this title the term "process of consultation and concurrence" means a methodology by which the Secretary (1) keeps a State or Indian tribe fully and currently informed about the aspects of the project related to any potential impact on the public health and safety, (2) solicits, receives, and evaluates concerns and objections of the State or Indian tribe with regard to such aspects of the project on an ongoing basis, and (3) works diligently and cooperatively to resolve such concerns and objections.

(e) The Secretary, the State and, as the case may be, the Indian tribe shall seek to conclude the agreement under subsection (b) not later than one year after the date of notification under subsection (a). The Secretary shall report to the Congress annually thereafter on the status of efforts to resolve objections under any agreement approved under subsection (c). Any report to the Congress on the status of negotiations under subsection (b) or the agreement under subsection (c) by the Secretary shall be accompanied by comments solicited by the Secretary from the State and, as the case may be, the Indian tribe.

SEC. 603. (a) In carrying out the provisions of sections 401 through 405 with regard to any safe repository for the permanent disposal of spent fuel and high-level radioactive waste from civilian nuclear activities which repository is or may be proposed by the Secretary under such sections for subsequent construction authorization by Congress, or any safe repository so proposed, the construction of which has been authorized by Congress, the Secretary shall—

(1) as soon as practicable, but prior to initiation of any onsite investigation in any State, notify the Governor, the legislature of such State and any affected Indian tribe in writing of his intention to initiate such investigation;

(2) during the course of investigation of any site, keep the Governor, the legislature and any such tribe currently informed of the progress of work and of results of the investigation;

(3) at the time of selection by the Secretary of any site for such a safe repository, but prior to undertaking any site-specific design work, promptly notify the Governor, the legislatures and the tribe in writing of such selection;

(4) throughout the course of any subsequent design work and site verification activities provide continuing access to designees of the Governor and the

tribe to the design and other information developed which the Secretary determines is relevant and provide opportunity for review and comment by the Governor and the tribe from time to time during such work and activities; and

(5) notify the Governor, the legislature, and the tribe in writing at least ninety days prior to formal application by the Secretary to the Commission for a construction permit for such safe repository.

(b) To the extent practicable, actions of the Secretary under this section shall be consistent with any agreements concluded under section 602 between the Secretary and such State and tribe.

(c) If at any time after the Governor or an affected Indian tribe has received notice of site selection, but no later than ninety days after receipt of notice under subsection (a) of intent to file an application for a construction permit with the Commission, the Governor or the Indian tribe notifies the Secretary in writing of objections to the proposed safe repository, the Secretary shall suspend further site-specific activities on such repository and promptly transmit such objections together with the Secretary's comments and recommendations to the Congress and the President.

(d) If the President determines that—

(1) a safe repository which is the subject of a notification under subsection (c) is essential to the national interest; and

(2) the concerns of the State and, as the case may be, the Indian tribe, have been addressed to an extent sufficient for the Secretary to apply to the Commission for a license to construct such repository,

the President shall submit a statement to that effect to the Congress under procedures set forth in section 551 of the Energy Policy and Conservation Act (42 U.S.C. 6521). Any determination by the President under this subsection shall not be subject to judicial review. Such statement shall be subject to review as if it were an "energy action" under such section 551. The Secretary may continue activities on the facility referred to in subsection (c) on the sixtieth day after the submission of such statement unless one House of Congress enacts a disapproval resolution under section 6421 of title 42, United States Code.

(e)(1) For purposes of this section any reference in section 6461 of title 42, United States Code, to a period of—

(A) fifteen calendar days shall be considered to be a reference to sixty calendar days; and

(B) five calendar days shall be considered to be a reference to twenty calendar days.

(2) For purposes of this section any reference in section 6461 of title 42, United States Code, to a resolution shall mean only a resolution of either House of Congress described in subparagraph (A) or (B) of this paragraph:

(A) A resolution of the matter after the resolving clause of which is as follows: "That the does not believe that the proposed development of a repository at within the State of referred to in the statement transmitted to Congress by the President on sufficiently addresses the concerns of such State and any affected Indian tribe within such State".

(B) A resolution the matter after the resolving clause of which is as follows: "That the believes that the proposed development of a repository at within the State of referred to in the statement transmitted to Congress by the President on sufficiently addresses concerns of such State or any affected Indian tribe within such State".

The first blank space of any such resolution shall be filled with the name of the resolving House, and the other blank spaces shall be appropriately filled.

(f) For purposes of this section the term "affected Indian tribe" means an Indian tribe upon whose reservation a repository will be sited.

The CHAIRMAN. I yield to the distinguished Senator from Wyoming, Senator Simpson.

STATEMENT OF HON. ALAN K. SIMPSON, A U.S. SENATOR FROM THE STATE OF WYOMING

Senator SIMPSON. Thank you, Mr. Chairman.

I want to thank you for your extraordinary efforts in this situation. I, too, am very pleased to join in opening these joint hearings on the Senate Energy and Natural Resources Committee and the Nuclear Regulation Subcommittee of the Environment and Public Works Committee on the issue of nuclear waste management disposal legislation.

I and other members of the Environment and Public Works Committee are cosponsors of S. 1662, the National Nuclear Waste Policy Act of 1981.

That is one of the bills being considered in these joint hearings. I am particularly pleased that this bill combines in a single, comprehensive proposal both the program to solve the commercial nuclear waste problem and it also sets out the essential regulatory features to assure that the programs are carried out in a safe and environmentally sound manner.

As we know, Mr. Chairman, the mission of the Nuclear Regulatory Commission and the mission of the entire program that surrounds this issue are to protect the public health and safety, so I personally believe this is the best way to go in developing this legislation and will serve us as the framework for finally resolving the nuclear waste problem, a solution that is so long overdue.

Your efforts have been most extraordinary in the development of this proposal and your fine staff, the staff of the committee.

I look forward to the continued close cooperation between our two committees as we proceed to not only consider but to pass this critical legislation.

There are, of course, Mr. Chairman, several issues regarding the management and disposal of commercial nuclear waste that I believe can and really must be addressed by any legislation.

Very briefly, that is the allocation of responsibility between the utility operators and the Federal Government for the interim storage of spent fuel, the nuclear powerplants, a plan for developing, building and operating a system of repositories that will provide the means for safe and environmentally sound permanent disposal of high level radioactive waste and the definition of the role of long-term, monitored retrievable storage and overall management of high level waste and spent fuels, a role consistent with the policies for interim spent fuel management and permanent disposal of high level waste and spent fuels.

I really believe that a comprehensive bill must include a method of funding for this program for developing and building and operating the facilities for commercial nuclear waste management and disposal that will assure full cost recovery by the Federal Government, one that will provide the necessary funding when it is needed and one that will appropriately impose the cost of commercial waste management on those who most benefit from the commercial source to create the generation of the waste.

That, I think, is the breakthrough of this legislation. I believe that nuclear waste legislation must provide a mechanism for participation by States and Indian tribes in the development, construction and operation of nuclear waste disposal facilities.

In that regard, I believe it is particularly appropriate that we begin our hearings today with testimony from organizations representing States and localities and Indian tribes that will be most affected by the development of these facilities.

One essential element is assuring States that local and Indian tribe cooperation in this legislation will be to provide for a fair opportunity for them to participate.

Mr. Chairman, those are the things before us and in my time as chairman of the Nuclear Regulation Subcommittee, we have grappled with all of the issues, TMI and imports and licensing and administrative snafus, but the issue is what are we going to do with the stuff left over when you are through with generation. That is what we are up to.

I think certainly S. 1662 includes the elements to address each of these areas and I think your proposal is a sound beginning and a genuine effort toward the development of an effective national nuclear waste policy.

I look forward to hearing the testimony, Mr. Chairman.

Thank you for your courtesy.

The CHAIRMAN. Thank you, Senator Simpson.

Senator Johnston?

STATEMENT OF HON. J. BENNETT JOHNSTON, A U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator JOHNSTON. Thank you, Mr. Chairman.

Last year the Senate passed legislation which I thought was sound which we all cooperated on. I hope we can come up with a policy similar to that.

I know it won't be identical, but in my view, a nuclear waste policy that is married exclusively to geologic formations is going to be, if not doomed to failure, at least productive of a tremendous amount of divisiveness. Geologic formations happen to occur at random throughout the country and in areas where people have little stake in the nuclear industry, no understanding of it, no appreciation of it, no jobs that come from it, none of the desirable effects of the nuclear industry.

On the other hand, if you go with what we have called monitored retrievable storage, it can be put in areas that are on existing Government reservations, areas that do have a great stake in the nuclear industry, that have jobs, where people are aware of nuclear power, of its dangers, of its benefits, its advantage, and most important, where people understand it and are basically willing to accept, if not anxious to accept, at least willing to accept, nuclear waste.

Now to make the decision purely on those political grounds would be very bad policy indeed if we were making a sacrifice for safety.

In other words, if the most sound way to put nuclear waste away was really to put it in deep geological formations, then that is what we ought to do regardless of the politics and the divisiveness of it.

The fact of the matter is that the hearings we have had over a period of years would indicate that to build an engineered structure for the storing of waste is safer, because it can be monitored. Such a man-made facility, in my view, should be below ground, but not below the ground water table.

Why we would want, for example, to use the salt domes in my State—and I mention that because we have a passing political interest in it—but also because salt domes—and I am sure the same thing is true maybe to a lesser extent with other kinds of salt formations, bedded salt or otherwise, are just not as good intrinsically. They extend below the water table, and salt domes can leak.

We had a recent example of that in the Lake Peigner accident down in southern Louisiana. You say, well, that is because we drilled a hole down there and with nuclear storage we wouldn't do that.

How about the Winfield salt dome? How about the many other instances where we have tried to use salt domes—I don't know where this occurred, but the engineer who designed the facility told me about it.

They were to store LP gas under pressure there, and so they designed the facility, put the LP gas in under great pressure and sealed it off and came back after a period of time to get the LP gas out and it was gone.

They didn't know exactly where it had gone or why it had gone.

The CHAIRMAN. Would the Senator yield?

Senator JOHNSTON. Yes.

The CHAIRMAN. It is simply not as strong as the Capitol dome.

Senator JOHNSTON. The Capitol dome probably contains the hot air better than that one does.

Anyway, we can make a facility which is, I think, safer and will give us a better solution, and I hope that is the direction that our legislative efforts will go.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Senator Johnston.

Senator Domenici has submitted a statement which I will insert at this point.

[The prepared statement of Senator Domenici follows:]

OCTOBER 5, 1981

OPENING STATEMENT BY
SENATOR PETE V. DOMENICI

MR. CHAIRMAN, AS A MEMBER OF BOTH THE COMMITTEE ON ENERGY AND NATURAL RESOURCES AND THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS I HAVE BEEN ABLE TO VIEW THE ISSUE OF NUCLEAR WASTE MANAGEMENT FROM BOTH COMMITTEES. AT TIMES THAT HAS BEEN FRUSTRATING, BUT TODAY I AM HAPPY TO SEE WE ARE HOLDING JOINT HEARINGS ON A BILL THAT WAS COSPONSORED BY THE CHAIRMEN AND MEMBERS OF BOTH COMMITTEES. I BELIEVE THIS SHOULD BE INTERPRETED AS A SIGN OF THE SERIOUSNESS WITH WHICH WE VIEW THIS MATTER.

MY COLLEAGUES KNOW WE ARE NOT SPEAKING HYPOTHETICALLY WHEN WE DISCUSS THE DISPOSAL OF HIGH-LEVEL WASTE. WE HAVE WASTE ON HAND THAT MUST BE DISPOSED OF. AND AS MY COLLEAGUES ALSO KNOW THERE ARE MANY WHO WOULD SAY THERE IS NO SAFE WAY TO DISPOSE OF NUCLEAR WASTES AND THEREFORE THERE IS NO SAFE WAY TO HAVE NUCLEAR POWER. I HAVE BECOME CONVINCED AFTER MANY YEARS OF CONGRESSIONAL HEARINGS AND REPORTS THAT WE CAN DISPOSE OF NUCLEAR WASTES SAFELY. I AM ALSO CONVINCED THAT NUCLEAR POWER IS AND CAN BE PRODUCED SAFELY.

THE OUTSTANDING ISSUES IN NUCLEAR WASTE DISPOSAL ARE NOT TECHNICAL BUT OF AN INSTITUTIONAL OR POLICY NATURE. MY INTERESTS IN THE ROLE OF STATE AND TRIBAL GOVERNMENTS IN THE DISPOSAL OF NUCLEAR WASTES IS KNOWN TO MANY OF YOU. IT IS ONE OF THOSE INSTITUTIONAL ISSUES WHICH CONTINUE TO STALL OUR EFFORTS IN THIS AREA. I BELIEVE THE PROVISIONS OF THIS BILL PROVE TO BE THE MOST ACCEPTABLE FORMULATION TO DATE. STATE AND TRIBAL GOVERNMENTS WOULD BE ASSURED OF THEIR RIGHTS TO CONSULTATION AND CONCURRENCE THROUGH A WRITTEN COOPERATIVE AGREEMENT WHICH WOULD PROVIDE A MECHANISM FOR RESOLVING CONFLICTS. THIS MECHANISM COULD TAKE THE FORM OF NEGOTIATION OR ARBITRATION. UTLIMATELY, PRIOR TO THE SECRETARY OF ENERGY'S APPLYING FOR A CONSTRUCTION AUTHORIZATION THE CONGRESS WOULD HAVE

THE OPPORTUNITY TO REVIEW OUTSTANDING STATE OR TRIBAL CONCERNS. A PROCEDURE FOR A RESOLUTION WHICH WOULD SUPPORT THE CONTENTIONS OF THE STATE OR TRIBAL GOVERNMENTS AND THEREBY HALT THE SECRETARY FROM PROCEEDING IS PROVIDED. THIS PROCESS IS ONE THAT INVOLVES STATE AND TRIBAL GOVERNMENTS FULLY AND YET RECOGNIZES THE UTLIMATE FEDERAL RESPONSIBILITY.

OUR EFFORTS HERE TODAY AND TOMORROW DEMONSTRATE OUR WILLINGNESS TO REACH A CONCENSUS ON THIS AND OTHER ISSUES. I BELIEVE WE CAN REACH THIS CONSENSUS AND I APPLAUD THE LEADERSHIP OF OUR CHAIRMEN.

The **Chairman**. We have three witnesses this afternoon and I will ask them to come up as a panel.

We will continue the hearings tomorrow morning and hope to complete the hearing tomorrow. We have a busy agenda tomorrow.

Mr. Holmes Brown, associate staff director of the Committee on Energy and Environment of the National Governors' Association; Mr. Edward Helminski, deputy director of the State Planning Council on Radioactive Waste Management; and Mr. Russell Jim, Council of Energy Resources Tribes.

We welcome you three gentlemen here.

Senator **Simpson** [presiding]. We will proceed, and I believe that you have been advised to present your statements in summary fashion and, of course, your full statement will be accepted into the record in its entirety.

As the chairman, we do welcome you to the joint hearings, and, Mr. Holmes Brown, associate staff director, Committee on Energy and Environment, National Governors' Association.

STATEMENT OF HOLMES BROWN, ASSOCIATE DIRECTOR, COMMITTEE ON ENERGY AND ENVIRONMENT, NATIONAL GOVERNORS' ASSOCIATION, ON BEHALF OF GOV. JOHN V. EVANS OF IDAHO

Mr. **Brown**. Thank you, Senator.

Mr. Chairman, members of the committee, my name is Holmes Brown. I am associate director of the National Governors' Association Committee on Energy and Environment with specific responsibility for nuclear issues.

I will be presenting the statement this afternoon on behalf of Gov. John Evans, the Governor of Idaho, who is the chairman of the Nuclear Power Subcommittee of the National Governors' Association.

The Governors through the National Governors' Association have long supported a comprehensive waste management policy and program. An increasing amount of our time and deliberations have gone into consideration of the issues of nuclear power.

The subcommittee has devoted considerable time and efforts to formulating and promoting the passage of nuclear waste management legislation. The adoption last session of the National Low-Level Radioactive Waste Policy Act, which incorporates many of the recommendations of NGA's low-level waste task force, was gratifying. States have subsequently taken an active role in implementing the provisions of that act.

Recent initiatives regarding both high- and low-level radioactive waste demonstrate the commitment and capability of the Governors to continue to assist in the resolution of these issues. While we have been concerned about many diverse aspects of the waste problem, our primary focus has been to insure that the States and the public play a key role in the decisionmaking process to guarantee the protection of health and safety and the environment. For Governors, the most critical aspect of the legislation is the form and extent of the States' participation.

The National Governors' Association has long maintained that the States must play a primary role in decisions affecting nuclear waste facilities. We have used the terms "consultation and concurrence" and "cooperative federalism" to describe how that should happen. Our position is based on the principle that while no State may reasonably impede the national interest, federalism makes the States equal partners in pursuing that interest.

The NGA's original policy statement on waste management, adopted in 1977, insisted that States be given the absolute power to veto a project. Subsequently, the States have dropped that provision and in its place endorsed a process of extensive participation in siting and construction and a congressional review if a State objects to DOE plans.

The formula contained in the present version of S. 1662 approximates the policy recommended by the National Governors' Association.

There is, however, one point of disagreement. The Governors and the State Planning Council have recommended a procedure where both Houses of Congress are required to support the Department of Energy's plan rather than one House voting with the State, as S. 1662 provides.

The States feel that the burden of securing support in Congress should be on DOE rather than on the State and that if the Department has designed and implemented its program correctly, congressional assent in both Houses is not an unreasonable requirement.

We are convinced that early and substantial involvement of State and local officials and the public will strengthen and accelerate the waste management program by building public confidence and diminishing opportunities for obstructionism and litigation.

The States wish to commend the authors of the bill for attending to State interests. In particular, we extend our appreciation to Senators Domenici, Simpson, and McClure for their efforts on S. 1662 and Senators Johnston and Jackson on S. 637.

While away from reactor [AFR] storage is an issue which NGA suggests requires national attention, we have not made specific recommendations on the program. The States do, however, have problems with the absence of a State role in the siting of an AFR.

The Presidential override mechanism contained in S. 1662 parallels the legislation of last year—which States objected to at the time.

The lifespan of an AFR has been estimated at up to 40 years. In most States that is the equivalent of 10 to 20 terms of office for a Governor.

While four decades is insignificant in relation to the half lives of some radioactive elements, it is a political eternity.

Given the similarities in terms of health and safety considerations, transportation problems, and political impact between AFR's and repositories, the NGA recommends that a congressional appeal procedure like that applied to disposal sites be instituted for the AFR program.

NGA policy states that the ultimate disposal of high-level waste must have the highest priority and that the solution must not be delayed but accomplished through utilizing available and workable technologies. Thus, the National Governors' Association strongly supports the adoption of a timetable leading to the operation of a permanent repository.

Let the Governors add, however, a word of caution. We know from experience that any decisions involving radioactivity arouse intense interest, if not controversy. While a rigorous chronology is advisable, the Governors insist that a technically conservative program is essential for ultimate success.

Thorough investigations of each candidate site should be carried out, since failures at other nuclear waste facilities both high and low level have created an unfortunate legacy of public mistrust.

Furthermore, the timeframe established in S. 1661 may compel the Department to select those sites which have received extensive study, even if they are not the most promising sites on a national scale.

I understand that a panel of State personnel is scheduled for a later hearing. Their views on DOE operations up to this point and the views of State geologists should provide useful information on devising an accelerated, but realistic, timetable.

The National Governors' Association welcomes this opportunity to comment on proposed high-level waste legislation. The States worked diligently last session to secure passage of such a bill and are confident that this 97th Congress will enact a comprehensive waste management plan. The NGA has adopted extensive policy recommendations on waste legislation over the years. We have endorsed a decisive State role.

This year's high-level waste bill contains many of the provisions long advocated by the Governors. We are gratified by the access to and cooperation with Congress we have experienced this far.

The Governors are convinced that by working together with the legislative and executive branches, we can devise a waste management program which satisfactorily balances the interests of all parties and protects the public health and safety which is our paramount goal.

[The prepared statement of Mr. Brown follows:]

Testimony of

Holmes Brown
National Governors' Association

on behalf of

Governor John V. Evans
Chairman, Subcommittee on Nuclear Power

Mr. Chairman, Member of the Committees:

As Governor of Idaho and as chairman of the National Governors' Association's Subcommittee on Nuclear Power, I very much appreciate the opportunity to submit a statement to this joint meeting of the Committee on Environment and Public Works and the Committee on Energy and Natural Resources. The issue of nuclear waste is of critical importance to me, the residents of my state and my fellow Governors. It is a problem that has grown in scope and magnitude since America and the world entered the nuclear era 35 years ago. As we increase our reliance on nuclear power, we are increasingly faced with a public mandate to resolve the waste issue. We have unfortunately reaped the benefits of the atom without a public policy for resolving the dilemma of its wastes.

The extent of those wastes is now of extreme concern. Seventy-five million gallons of highly radioactive material is stored in temporary tanks at federal facilities. The over 70 licensed commercial reactors in the country have produced another 600,000 gallons of highly radioactive wastes and over 8,000 metric tons of spent reactor fuel. That spent fuel is now distributed around the nation in water-filled holding tanks. As we are all aware, the public is becoming more and more apprehensive about the effects and disposition of those wastes. That public apprehension and the lack of a clear policy in the area will continue to cloud the discussion of the future of nuclear power until we have Congressional action on the issue.

The Governors, through the National Governors' Association, have long supported a comprehensive national waste management policy and program. An increasing amount of our time and deliberations have gone into consideration of the issues of nuclear power. The Subcommittee which I chair has devoted considerable time and efforts to formulating and promoting the passage of nuclear waste management legislation. The adoption last session of the National Low-Level Radioactive Waste Policy Act, which incorporates many of the recommendations of NGA's Low-Level Waste Task Force, was gratifying. States have subsequently taken an active role in implementing the provisions of that act. Recent initiatives regarding both high-and low-level radioactive waste demonstrate the commitment and capability of the Governors' to continue to assist in the resolution of these issues. While we have been concerned about many diverse aspects of the waste problem, our primary focus has been to ensure that the states and the public play a key role in the decision-making process to guarantee the protection of health and safety and the environment. For governors, the most critical aspect of the legislation is the form and extent of the state's participation.

Let me assure you that the states' insistence on a substantial role in the siting and development of a repository is in no way intended to slow or jeopardize the disposal of high-level radioactive waste. The Governors' Association worked diligently last year for the passage of a nuclear waste bill. We remain committed to that end and are encouraged by the cooperation which has marked this year's Senate deliberations. Both those which are potential host states and those which generate high level waste support the expeditious adoption of a comprehensive waste management program. Failure to do so only increases public doubts and may later lead to the hurried passage of inadequate legislation with a strong federal orientation. Experience demonstrates that state/federal cooperation yields to the best political and technical solutions. I would now like to turn to specific elements of the legislation under consideration.

State Participation

The National Governors' Association has long maintained that the states must play a primary role in decisions affecting nuclear waste facilities. We have used the terms "consultation and concurrence" and "cooperative federalism" to describe how that should happen. Our position is based on the principle that while no state may reasonably impede the national interest, federalism makes the states equal partners in pursuing that interest.

The NGA's original policy statement on waste management, adopted in 1977, insisted that states be given the absolute power to veto a project. Subsequently, the states have dropped that provision and in its place endorsed a process of extensive participation in siting and construction and a Congressional review if a state objects to DOE plans. The formula contained in the present version of S. 1662 approximates the policy recommended by the National Governors' Association. There is, however, one point of disagreement. The governors and the State Planning Council have recommended a procedure where both houses of Congress are required to support the Department of Energy's plan rather than one house voting with the state, as S. 1662 provides. The states feel that the burden of securing support in Congress should be on DOE rather than on the state and that if the Department has designed and implemented its program correctly, Congressional assent in both houses is not an unreasonable requirement. We are convinced that early and substantial involvement of state and local officials and the public will strengthen and accelerate the waste management program by building public confidence and diminishing opportunities for obstructionism and litigation. The states wish to commend the authors of the bill for attending to state interests. In particular, we extend our appreciation to Senators Domenici, Simpson and McClure for their efforts on S. 1662 and Senators Johnston and Jackson on S. 637.

Away-From-Reactor (AFR) Storage

While away-from-reactor (AFR) storage is an issue which NGA suggests requires national attention, we have not made specific recommendations on the program. The states do, however, have problems with the absence of a state role in the siting of an AFR. The Presidential override mechanism contained in S. 1662 parallels the legislation of last year - which states objected to at the time. The life span of an AFR has been estimated at up to forty years. In most states that is the equivalent of 10 to 20 terms of office for a governor. While four decades is insignificant in relation to the half lives of some radioactive elements, it is a political eternity. Given the similarities in terms of health and safety considerations, transportation problems and political impact between AFRs and repositories, the NGA recommends that a Congressional appeal procedure like that applied to disposal sites by instituted for the AFR program.

Chronology

NGA policy states that the ultimate disposal of high-level waste must have the highest priority and that the solution must not be delayed but accomplished through utilizing available and workable technologies. Thus, the National Governors' Association strongly supports the adoption of a time table leading to the operation of a permanent repository. Let the governors add, however, a word of caution. We know from experience that any decisions involving radioactivity arouse intense interest, if not controversy. While a rigorous chronology is advisable, the governors insist that a technically conservative program is essential for ultimate success. Thorough investigations of each candidate site should be carried out, since failures at other nuclear waste facilities both high-and low-level have created an unfortunate legacy of public mistrust. Furthermore, the time frame established in S. 1662 may compel the Department to select those sites which have received extensive study, even if they are not the most promising sites on a national scale. I understand that a panel of state personnel is scheduled for a later hearing. Their views on DOE operations up to this point and the views of state geologists should provide useful information on devising an accelerated, but realistic, time table.

Impact Assistance

The governors in their August, 1980 policy declaration, assert that greater attendtion should be directed to the issue of impact assistance. Presumably, under the cooperative agreements called for in Title VII of S. 1662, states could negotiate with DOE for compensation to cover the quantifiable fiscal and social impacts of the construction of a repository on a community. Since the user fee is designed to cover the full costs of a facility, we would support authorization of monies from the fund to cover impact assistance.

Defense Waste

Governors are aware that application of state participation provisions to defense waste was a major factor in stymieing last year's nuclear waste bill. I do not raise the issue in this forum to complicate an already complex issue, but to remind Congress that for states defense wastes pose not just jurisdictional problems but the same health and safety, environmental and political issues as civilian waste. The states, based on past experience with defense bases and weapons facilities, are keenly aware of the unique issues surrounding state/military relations. Yet waste is discarded material of no further use to the government. It appears to occupy a different category than active facilities. The National Governors'

Association urges, at the least, that the issue of defense waste not be ignored but that the Congressional committees of jurisdiction explore this session ways of resolving the national security and procedural questions that prevent a greater state role in the disposal of military waste.

Conclusion

The National Governors' Association welcomes this opportunity to comment on proposed high-level waste legislation. The states worked diligently last session to secure passage of such a bill and are confident that this 97th Congress will enact a comprehensive waste management plan. The NGA has adopted extensive policy recommendations on waste legislation over the years. We have endorsed a decisive state role.

Last December, Congress adopted the Low-Level Radioactive Waste Policy Act which reflected many of the recommendations of the states as represented by the NGA, the State Planning Council and the National Conference of State Legislatures. I am happy to report that all regions of the country are actively engaged in carrying out the mandate of the low-level waste legislation.

This year's high-level waste bill contains many of the provisions long-advocated by the governors. We are gratified by the access to and cooperation with Congress we have experienced this far. The governors are convinced that by working together with the legislative and executive branches, we can devise a waste management program which satisfactorily balances the interests of all parties and protects the public health and safety which is our paramount goal.

Senator SIMPSON. Thank you very much, Mr. Brown.

Mr. Edward Helminski.

STATEMENT OF EDWARD L. HELMINSKI, ON BEHALF OF THE STATE PLANNING COUNCIL ON RADIOACTIVE WASTE MANAGEMENT

Mr. HELMINSKI. My name is Edward L. Helminski. I served as the senior policy adviser to the Presidentially established State Planning Council on Radioactive Waste Management.

Three years ago, when I was staff director of energy and natural resource program for the National Governors' Association, I was part of the effort with the Governors in developing the principles of the Federal/State partnership and decisionmaking process that has become the foundation of nuclear waste management initiatives both executive and legislative. I am, therefore, especially pleased to be here today.

In my statement, I will highlight the major provisions of the council's recommendations, and address specific provisions of the two bills: S. 1662 and S. 637 as these provisions relate to the council's recommendations. I will provide, and so identify, my personal comments and recommendations.

Before proceeding, I would like to request the chairman's permission to include the council's report to the President in the record of this hearing.[1]

Senator SIMPSON. Without objection, it is so ordered.

Mr. HELMINSKI. In their letter of transmittal to the President, Gov. Richard Riley, the council's chairman, and the State Senator Paul Hess, vice chairman, plainly state, with regard to achieving the Nation's radioactive waste management objectives, that:

> Of primary importance is the need for Congress to enact legislation that establishes a national policy for the permanent disposal of all high-level and transuranic wastes. (The) legislation should specify an intergovernmental decisionmaking process based on the principles consultation and concurrence. Unless this national policy, and the institutional framework to achieve it is enacted into law, we will not be able to regain public confidence in our nation's ability to safely manage and dispose of these wastes.

On behalf of Governor Riley and the council members, I commend you, Mr. Chairman, and the members of this committee for taking on this thankless task of putting forth the legislation, and laying out the institutional framework under which this Nation can proceed toward reaching a final solution to the nuclear waste management program.

I would like to take one aside from the testimony here. Recently the State of Michigan has informed the Department of Energy that they will not allow DOE to undertake exploratory and site investigations in that State. In a conversation with one of the senior officials in the State, I asked him what basis they gave and they put it in the letter.

They said the basis on which they had decided not to let DOE into the State was the lack of any safeguard in national legislation.

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[1] See app. I.

They did not put that in the letter, but it was the principal staff person that was working with the Governor in making that decision.

Let me go back to my testimony.

Though the council resolutions differ in detail, with regard to the process of consultation and concurrence, I am sure that the ensuing congressional debate will provide for adoption and enactment of a process that will be practicable, and allow the development of a national waste program to proceed in a publicly responsive manner.

As to what should be covered in a national policy, the council's recommendations are, for the most part, included in the legislation:

They are outlining the role of Federal/State/local/triable governments in the decisionmaking process;

The setting of timetables to allow for orderly and informed decisionmaking; and

The need to assert that the industry has primary responsibility for providing interim storage of spent nuclear fuel.

The Council, however, recommended that a national nuclear waste program include all wastes—and inherent in all its recommendations was that timetables should be set to guide sound decisionmaking by all parties to insure public acceptability and confidence in final decisions.

Though title III of S. 1662 establishes that the industry is primarily responsible for the storage of spent fuel, it authorizes the construction of a limited capacity Federal AFR.

The Secretary is directed to establish reasonable criteria to determine whether a utility "cannot reasonably provide" storage capacity at the site of the powerplant "to insure the continued orderly operation of the powerplant." The development of the regulations under which the Secretary can make this decision hinges on the interpretation of "reasonable."

A State PUC requiring a certificate of need from a utility could be deemed adequate to address what the Secretary calls "reasonable" need. Also, a "poor political climate" clouds a determination of what is reasonable or unreasonable.

I would like to bring to the committee's attention that reasonable may mean not politically viable, and I do not think we should make a decision on not allowing a State or a utility not to take action on legislation because of a poor political climate in that State.

The State planning council recognized that some States may react in not a truly responsible manner in allowing a utility to establish storage capacity.

It called on the States to: "Facilitate utility efforts to develop and share safe storage capacity while considering health and safety, and citizens' concerns regarding utility spent fuel storage proposals."

I would personally recommend outlining the criteria under which the Secretary may accept spent fuel—and would ask the committee to consider that the Secretary not make any commitment or enter into contracts until the NRC has made a determination, under its regulatory authority, using the criteria of public health and safety that it is required to use, of the ability of a utility to store its spent fuel.

I would further recommend that the legislation provide incentives that State decisionmaking processes, if undertaken, will be the basis of the Secretary's decisions, and that those State processes be based on public health and safety and environmental criteria.

The council stated that:

> The Federal Government has a role to play in assuring adequate storage capacity. The Federal Government should: maintain a constant policy regarding private responsibility for interim storage of spent fuel, continue to monitor and assess utility progress in developing adequate, timely capacity; and facilitate interstate cooperation when utilities propose to transport spent fuel across State lines. The Department of Energy should continue to work cooperatively with industry to develop and demonstrate new technologies such as rod consolidation and dry storage techniques. The Department of Energy should ensure that these techniques are available for use by 1986.

Before addressing the details of title IV, let me skip to title V which provides for the establishment of long-term storage facility. The council believed that the aim of a nuclear waste disposal program should be the establishment of permanent facilities.

In making this recommendation, the council believed that deviations from this objective would just further cloud the credibility of the industry contention that safe/permanent disposal was achievable.

The pursuit of two independent paths to achieve disposal will require more Federal resources than may be available, and therefore, serve only to hinder the establishment of a permanent repository.

Title IV embodies the absolutely necessary components of national legislation that the State planning council called for in its final report. Rather than go into detail through the council recommendations, I refer the committee members and staff to the council resolutions contained on pages 2 through 16 of the final report.

I would like to highlight the following aspects:

One of the interesting aspects is the understanding of what nuclear waste is and what kind of electricity power nuclear power is providing to the public.

One of the problems is that some of those States who supposedly have an appreciation for nuclear power are not ready to accept any other initiatives dealing with nuclear waste.

Comments from State officials and the public in Nevada are not conducive to establishment of a facility in Nevada, nor are they at this time in Utah, where there has been significant mining for uranium.

Let me now go into the principal recommendations of the council.

The council endorsed the development of intergovernmental agreements with States at the onset of exploratory studies, rather than waiting until a site characterization recommendation is put forth, as this legislation proposes. Early agreements will allow the building of a cooperative partnership between DOE and a State.

The legislation should provide incentives for establishing such early agreements without requiring them. Further, I recommend that the committee closely examine the benefits of initiating consultation and concurrence at the site characterization phase rather than at the site selection time.

I will leave with the committee an intergovernmental agreement covering DOE and State activities developed by the State planning council and sent to all the States and anyone else that requested it.[1]

Senator SIMPSON. Thank you.

Mr. HELMINSKI. Two, the council believes that public acceptability and institutional credibility is the key to putting in place a structurally sound waste program. This can only be achieved through sound decisionmaking, and reasonable, orderly timetables.

Decisions should be made in a progressively incremental manner, building on acquired knowledge. I would ask the committee to restructure timetables to allow for site characterization, surveys, and an adequate test and evaluation period so that they occur prior to the President's first decision on a site selection. The time allowed for deliberation by the Governors and the Congress should also be extended, but not a long time. Sixty to ninety days on a decision for a Governor to react to location in this State for site characterization studies.

Third, I would ask on behalf of the council that the committee consider putting in the legislation a consultation and concurrence process that would allow States' objections to stand unless both Houses of Congress act to override the objections and approve the site.

This could act to enhance the public debate and improve the program's credibility. I would also add that the council believed that decisions on a test and evaluation site should be through a process of consultation and concurrence.

Let me conclude by stating for the council, and myself, that this legislation is a long step down the path to putting in place a responsible national nuclear waste program. We all need to work toward enactment of a program that we can accept.

The council and I believe, however, that the legislation should cover all wastes. There is no reason why defense programs should be exempt from assuring public confidence. When a radioactive spill was discovered at the Hanford Reservation many years ago, no one asked whether it was defense or commercial. The public wanted to know why it happened, and how the wastes were being stored.

In closing, let me leave you with these thoughts and a statement from the council's report:

> We will not gain public acceptance for a national repository program if the American people perceive that different programmatic and institutional procedures have been put in place for the disposal of wastes which, from the perspective of public health and safety, are essentially the same.
>
> As a nation, we have learned that sound technical solutions to the problems of waste disposal cannot be carried out without public acceptance. The key to gaining the public's confidence is a process of decision making which is open and accessible to elected officials from all levels of government.

The council believed that such a process can be put in place through a renewal of the traditional principles of our Federal system of government.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Helminski follows:]

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[1] See app. I.

TESTIMONY OF
EDWARD L. HELMINSKI
ON BEHALF OF
THE STATE PLANNING COUNCIL ON
RADIOACTIVE WASTE MANAGEMENT
AND HIMSELF

BEFORE THE

UNITED STATES SENATE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
AND
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

October 5, 1981

Mr. Helminski is Publisher of the "Radioactive Exchange" and founding partner of Edward L. Helminski & Associates.

MR. CHAIRMAN AND
MEMBERS OF THE COMMITTEE:

MY NAME IS EDWARD L. HELMINSKI. I .. SERVED AS THE SENIOR POLICY ADVISOR TO THE PRESIDENTIALLY ESTABLISHED STATE PLANNING COUNCIL ON RADIOACTIVE WASTE MANAGEMENT.

DURING THE LAST SIX MONTHS OF ITS EXISTENCE, AND FOR THE PAST EIGHT YEARS, I HAVE WORKED WITH STATE LEGISLATORS AND THE NATION'S GOVERNORS AS A PROGRAM DIRECTOR FOR THEIR INTEREST GROUPS ON THE DEVELOPMENT OF A RESPONSIVE NATIONAL NUCLEAR WASTE MANAGEMENT PROGRAM.

THREE YEARS AGO, WHEN I WAS STAFF DIRECTOR OF ENERGY AND NATURAL RESOURCE PROGRAMS FOR THE NATIONAL GOVERNORS' ASSOCIATION. I WORKED WITH THE GOVERNORS IN DEVELOPING THE PRINCIPLES OF THE FEDERAL/STATE PARTNERSHIP AND DECISIONMAKING PROCESS THAT HAS BECOME THE FOUNDATION OF NUCLEAR WASTE MANAGEMENT INITIATIVES BOTH EXECUTIVE AND LEGISLATIVE. I AM THEREFORE ESPECIALLY PLEASED TO BE HERE TODAY.

IN MY STATEMENT, I WILL HIGHLIGHT THE MAJOR PROVISIONS OF THE COUNCIL'S RECOMMENDATIONS, AND ADDRESS SPECIFIC PROVISIONS OF THE TWO BILLS: S.1662 AND S.637 AS THESE PROVISIONS RELATE TO THE COUNCIL'S RECOMMENDATIONS. I WILL PROVIDE, AND SO IDENTIFY, MY PERSONAL COMMENTS AND RECOMMENDATIONS.

BEFORE PROCEEDING, I WOULD REQUEST THE CHAIRMAN'S PERMISSION TO INCLUDE THE COUNCIL'S REPORT TO THE PRESIDENT IN THE RECORDS OF THIS HEARING, AS IT CONTAINS THE FULL ROSTER OF COUNCIL POLICY RECOMMENDATIONS REGARDING THE NEED FOR A HIGH-LEVEL WASTE REPOSITORY PROGRAM, AS WELL AS THE NEED FOR A CONSTANT FEDERAL POLICY TO ASSURE THE DEVELOPMENT OF A SPENT FUEL STORAGE PROGRAM. THIS REPORT ALSO CONTAINS A DETAILED OUTLINE OF THE COUNCIL'S CONSULTATION AND CONCURRENCE PROCEDURES AND A MECHANISM FOR RESOLVING CONFLICTS THAT MAY ARISE.

THE COUNCIL, IN TRANSMITTING ITS REPORT TO THE PRESIDENT, AND IN ONE OF ITS LAST ACTIONS, RECOGNIZED THAT THE RECOMMENDATIONS IT WAS PUTTING FORTH WOULD NOT SERVE THEIR INTENDED OBJECTIVE IF A CONGRESSIONAL MANDATE WAS NOT PROVIDED THROUGH THE ENACTMENT OF NATIONAL LEGISLATION.

IN THEIR LETTER OF TRANSMITTAL TO THE PRESIDENT, GOVERNOR RICHARD RILEY (THE COUNCIL'S CHAIRMAN) AND STATE SENATOR PAUL HESS (VICE-CHAIRMAN) PLAINLY STATE, WITH REGARD TO ACHIEVING THE NATION'S RADIOACTIVE WASTE MANAGEMENT OBJECTIVES, THAT

> Of primary importance is the need for Congress to enact legislation that establishes a national policy for the permanent disposal of all high-level and transuranic wastes. (The) legislation should specify an intergovernmental decisionmaking process based on the principles consultation and concurrence. Unless this national policy, and the institutional framework to achieve it is enacted into law, we will not be able to regain public confidence in our nation's ability to safely manage and dispose of these wastes.

ON BEHALF OF GOVERNOR RILEY AND THE COUNCIL MEMBERS, I COMMEND YOU, MR. CHAIRMAN, AND THE MEMBERS OF THIS COMMITTEE FOR TAKING ON THIS THANKLESS TASK OF PUTTING FORTH THE LEGISLATION, AND LAYING OUT THE INSTITUTIONAL FRAMEWORK UNDER WHICH THIS NATION CAN PROCEED TOWARD REACHING A FINAL SOLUTION TO THE NUCLEAR WASTE MANAGEMENT PROGRAM.

THOUGH THE COUNCIL RESOLUTIONS DIFFER IN DETAIL, WITH REGARD TO THE PROCESS OF CONSULTATION AND CONCURRENCE, I AM SURE THAT THE ENSUING CONGRESSIONAL DEBATE WILL PROVIDE FOR ADOPTION AND ENACTMENT OF A PROCESS THAT WILL BE PRACTICABLE, AND ALLOW THE DEVELOPMENT OF A NATIONAL WASTE PROGRAM TO PROCEED IN A PUBLICLY RESPONSIVE MANNER.

AS TO WHAT SHOULD BE COVERED IN A NATIONAL POLICY, THE COUNCIL'S RECOMMENDATIONS ARE, FOR THE MOST PART, INCLUDED IN THE LEGISLATION:

- OUTLINING THE ROLE OF FEDERAL/STATE/LOCAL/TRIBAL GOVERNMENTS IN THE DECISIONMAKING PROCESS:
- THE SETTING OF TIMETABLES TO ALLOW FOR ORDERLY AND INFORMED DECISIONMAKING; AND
- THE NEED TO ASSERT THAT THE INDUSTRY HAS PRIMARY RESPONSIBILITY FOR PROVIDING INTERIM STORAGE OF SPENT NUCLEAR FUEL.

THE COUNCIL, HOWEVER, RECOMMENDED THAT A NATIONAL NUCLEAR WASTE PROGRAM INCLUDE ALL WASTES.....AND INHERENT IN ALL ITS RECOMMENDATIONS WAS THAT TIMETABLES SHOULD BE SET TO GUIDE SOUND DECISIONMAKING BY ALL PARTIES TO ENSURE PUBLIC ACCEPTABILITY AND CONFIDENCE IN FINAL DECISIONS. I WILL ADDRESS BOTH OF THESE ASPECTS LATER IN MY STATEMENT.

THOUGH TITLE III OF S.1662 ESTABLISHES THAT THE INDUSTRY IS PRIMARILY RESPONSIBLE FOR THE STORAGE OF SPENT FUEL, IT AUTHORIZES THE CONSTRUCTION OF A LIMITED CAPACITY FEDERAL AFR. THE CAPACITY OF THIS FACILITY, ACCORDING TO DOE PROJECTIONS, COULD HANDLE ONLY ABOUT 15% OF SPENT FUEL ACCUMULATED BY 1985.

VERTHEMURP

THE SECRETARY IS DIRECTED TO ESTABLISH REASONABLE CRITERIA TO DETERMINE WHETHER A UTILITY "CANNOT REASONABLY PROVIDE" STORAGE CAPACITY AT THE SITE OF THE POWER PLANT "TO ENSURE THE CONTINUED ORDERLY OPERATION OF THE POWER PLANT." THE DEVELOPMENT OF THE REGULATIONS UNDER WHICH THE SECRETARY CAN MAKE THIS DECISION HINGES ON THE INTERPRETATION OF "REASONABLE."

A STATE P.U.C. REQUIRING A CERTIFICATE OF NEED FROM A UTILITY COULD BE DEEMED ADEQUATE TO ADDRESS WHAT THE SECRETARY CALLS "REASONABLE" NEED. ALSO, A 'POOR POLITICAL CLIMATE' CLOUD A DETERMINATION OF WHAT IS REASONABLE OR UNREASONABLE.

THE STATE PLANNING COUNCIL, IN ADOPTING ITS RECOMMENDATIONS, CALLED ON STATES TO:

> Facilitate utility efforts to develop and share safe storage capacity while considering health and safety, and citizens' concerns regarding utility spent fuel storage proposals.

I WOULD PERSONALLY RECOMMEND OUTLINING THE CRITERIA UNDER WHICH THE SECRETARY MAY ACCEPT SPENT FUEL--AND WOULD ASK THE COMMITTEE TO CONSIDER THAT THE SECRETARY NOT MAKE ANY COMMITMENT OR ENTER INTO CONTRACTS UNTIL THE NRC HAS MADE A DETERMINATION, UNDER ITS REGULATORY AUTHORITY, USING THE CRITERIA OF PUBLIC HEALTH AND SAFETY THAT IT IS REQUIRED TO USE, OF THE ABILITY OF A UTILITY TO STORE ITS SPENT FUEL.
I WOULD FURTHER RECOMMEND THAT THE LEGISLATION PROVIDE INCENTIVES THAT STATE DECISIONMAKING PROCESSES, IF UNDERTAKEN, WILL BE THE BASIS OF THE SECRETARY'S DECISIONS, ~~IF~~ AND THE STATE PROCESS ~~IS~~ BE BASED ON PUBLIC HEALTH & SAFETY AND ENVIRONMENTAL CRITERIA.

THE STATE PLANNING COUNCIL MEMBERS, IN DEBATING THE SPENT FUEL POLICY RECOMMENDATIONS, VOICED A CONCERN THAT BECAUSE OF EVER-CHANGING FEDERAL POLICY AND INACTION OVER THE PAST SEVERAL YEARS......FEDERAL CAPACITY MAY BE NECESSARY: BUT THE COUNCIL DID NOT RECOMMEND A FEDERAL FACILITY "BECAUSE THIS WOULD NOT ESTABLISH A "CONSISTENT" POLICY AND would also TAKE THE PRESSURE OFF BOTH THE INDUSTRY AND STATES IN WORKING-OUT THE ON-SITE STORAGE PROGRAMS."

THE COUNCIL STATED THAT:

> The Federal Government has a role to play in assuring adequate storage capacity. The Federal Government should: maintain a constant policy regarding private responsibility for interim storage of spent fuel; continue to monitor and assess utility progress in developing adequate, timely capacity; and facilitate interstate cooperation when utilities propose to transport spent fuel across state lines. The Department of Energy should continue to work cooperatively with industry to develop and demonstrate new technologies such as rod consolidation and dry storage techniques. The Department of Energy should ensure that these techniques are available for use by 1986.

BEFORE ADDRESSING THE DETAILS OF TITLE IV, LET ME SKIP TO TITLE V WHICH PROVIDES FOR THE ESTABLISHMENT OF LONG-TERM STORAGE FACILITY. THE COUNCIL BELIEVED THAT THE AIM OF A NUCLEAR WASTE DISPOSAL PROGRAM SHOULD BE THE ESTABLISHMENT OF PERMANENT FACILITIES.

IN MAKING THIS RECOMMENDATION, THE COUNCIL BELIEVED THAT DEVIATIONS FROM THIS OBJECTIVE WOULD JUST FURTHER CLOUD THE CREDIBILITY OF THE INDUSTRY CONTENTION THAT SAFE/PERMANENT DISPOSAL WAS ACHIEVABLE.

THE PURSUIT OF TWO INDEPENDENT PATHS TO ACHIEVE DISPOSAL WILL REQUIRE MORE FEDERAL RESOURCES THAN MAY BE AVAILABLE, AND THEREFORE SERVE ONLY TO HINDER THE ESTABLISHMENT OF A PERMANENT REPOSITORY.

TITLE IV EMBODIES THE ABSOLUTELY NECESSARY COMPONENTS OF NATIONAL LEGISLATION THAT THE STATE PLANNING COUNCIL CALLED FOR IN ITS FINAL REPORT. RATHER THAN GO INTO DETAIL THROUGH THE COUNCIL RECOMMENDATIONS, I REFER THE COMMITTEE MEMBERS AND STAFF TO THE COUNCIL RESOLUTIONS CONTAINED ON PAGES 2-16 OF THE FINAL REPORT. I WOULD LIKE TO HIGHLIGHT THE FOLLOWING ASPECTS:

ONE:

THE COUNCIL ENDORSED THE DEVELOPMENT OF INTERGOVERNMENTAL AGREEMENTS WITH STATES AT THE ON-SET OF EXPLORATORY STUDIES, RATHER THAN WAITING UNTIL A SITE CHARACTERIZATION RECOMMENDATION IS PUT FORTH, AS THIS LEGISLATION PROPOSES. EARLY AGREEMENTS WILL ALLOW THE BUILDING OF A COOPERATIVE PARTNERSHIP BETWEEN DOE AND A STATE. THE LEGISLATION SHOULD PROVIDE INCENTIVES FOR ESTABLISHING SUCH EARLY AGREEMENTS WITHOUT REQUIRING THEM. FURTHER, I RECOMMEND THAT THE COMMITTEE CLOSELY EXAMINE THE BENEFITS OF INITIATING CONSULTATION AND CONCURRENCE AT THE SITE CHARACTERIZATION PHASE RATHER THAN AT THE SITE SELECTION TIME.

TWO:

THE COUNCIL BELIEVES THAT PUBLIC ACCEPTABILITY AND INSTITUTIONAL CREDIBILITY IS THE KEY TO PUTTING IN PLACE A STRUCTURALLY SOUND WASTE PROGRAM. THIS CAN ONLY BE ACHIEVED THROUGH SOUND DECISIONMAKING, AND REASONABLE, ORDERLY TIMETABLES. DECISIONS SHOULD BE MADE IN A PROGRESSIVELY INCREMENTAL MANNER, BUILDING ON ACQUIRED KNOWLEDGE. I WOULD ASK THE COMMITTEE TO RESTRUCTURE TIMETABLES TO ALLOW FOR SITE CHARACTERIZATION, SURVEYS AND AN ADEQUATE TEST AND EVALUATION PERIOD PRIOR TO THE PRESIDENT'S FIRST DECISION ON A SITE SELECTION. THE TIME ALLOWED FOR DELIBERATION BY THE GOVERNORS AND THE CONGRESS SHOULD ALSO BE EXTENDED.

THIRD:

I WOULD ASK ON BEHALF OF THE COUNCIL THAT THE COMMITTEE CONSIDER PUTTING IN THE LEGISLATION A CONSULTATION AND CONCURRENCE PROCESS THAT WOULD ALLOW STATES' OBJECTIONS TO STAND UNLESS BOTH HOUSES OF CONGRESS ACT TO OVERRIDE THE OBJECTIONS AND APPROVE THE SITE. THIS COULD ACT TO ENHANCE THE PUBLIC DEBATE AND IMPROVE

THE PROGRAM'S CREDIBILITY. I WOULD ALSO ADD THAT THE COUNCIL BELEIVED THAT DECISIONS ON A TEST AND EVALUATION SITE SHOULD BE THROUGH A PROCESS OF CONSULTATION AND CONCURRENCE.

THERE ARE OTHER DETAILS REGARDING THE STATE PLANNING COUNCIL RECOMMENDATIONS THAT I AM AVAILABLE TO WORK WITH YOU AND THE COMMITTEE.

LET ME CONCLUDE BY STATING FOR THE COUNCIL, AND MYSELF, THAT THIS LEGISLATION IS A LONG STEP DOWN THE PATH TO PUTTING IN PLACE A RESPONSIBLE NATIONAL NUCLEAR WASTE PROGRAM. WE ALL NEED TO WORK TOWARD ENACTMENT OF A PROGRAM THAT WE CAN ACCEPT.

THE COUNCIL AND I BELEIVE, HOWEVER, THAT THE LEGISLATION SHOULD COVER ALL WASTES. THERE IS NO REASON WHY DEFENSE PROGRAMS SHOULD BE "EXEMPT" FROM ASSURING PUBLIC CONFIDENCE. WHEN A RADIOACTIVE SPILL WAS DISCOVERED AT THE HANFORD RESERVATION MANY YEARS AGO, NO ONE ASKED WHETHER IT WAS DEFENSE OR COMMERCIAL. THE PUBLIC WANTED TO KNOW WHY IT HAPPENED, AND HOW THE WASTES WERE BEING STORED.

IN CLOSING, LET ME LEAVE YOU WITH A STATEMENT FROM THE COUNCIL's REPORT:

> We will not gain public acceptance for a national repository program if the American people perceive that different programmatic and institutional procedures have been put in place for the disposal of wastes which, from the perspective of public health and safety, are essentially the same.
>
> As a nation, we have learned that sound technical solutions to the problems of waste disposal cannot be carried out without public acceptance. The key to gaining the public's confidence is a process of decision making which is open and accessible to elected officials from all levels of government. The Council believed that such a process can be put in place through a renewal of the traditional principles of our Federal system of government.

Senator SIMPSON. Thank you very much, Mr. Helminski.

Now Russell Jim, please, of the Council of Energy Resource Tribes.

STATEMENT OF RUSSELL JIM, ON BEHALF OF THE COUNCIL OF ENERGY RESOURCE TRIBES

Mr. JIM. Thank you, Mr. Chairman. We certainly appreciate the opportunity to appear before you. We commend the committee and our colleagues for inviting us.

I have some supporting documents with the testimony for the record.

Senator SIMPSON. They will be accepted without objection.

Mr. JIM. Because of time constraints, I hope you will bear with me in the written testimony which I am about to read.

I am Russell Jim, a member of the Tribal Council of the Yakima Indian Nation, and the chairman of the tribe's OEDP Committee. I am here today representing the Council of Energy Resource Tribes (CERT). CERT appreciates this opportunity to present testimony on the National Nuclear Waste Policy Act of 1981, S. 1662, which has been proposed jointly by the Committee on Energy and Natural Resources and the Committee on Environment and Public Works.

CERT is an organization of 26 American Indian tribes in the West. Our common goal is to insure that any energy development affecting our resources occurs in an environmentally and economically sound manner.

The CERT tribes have a direct and active interest in the safe disposal of all radioactive wastes. For over two decades, approximately 18 percent of the Nation's uranium supply was produced from mines on the reservations of three Indian tribes: the Pueblo of Laguna, the Navajo Nation, and the Spokane Tribe.

The reservations of several other tribes, including the Yakima Nation, the Shoshone-Bannock Tribes, and the Pueblos, are located near existing radioactive waste disposal sites.

Furthermore, it is a little known fact that three of the four sites that the Department of Energy has identified as candidates for the first permanent repository also are near Indian lands. These are the Hanford, Washington site, which is near the Yakima Reservation—13 miles as the crow flies—the Nevada test site, which is near the Moapa and Las Vegas Reservations, and the Paradox Basin area in Utah, which is near the Navajo and Ute Mountain Ute Reservations.

Managing the wastes from each phase of the nuclear fuel cycle poses a difficult challenge to the Government and the private sector. It is CERT's position that this effort will succeed only if affected tribal and State governments are full partners in the decisionmaking process.

The CERT board of directors has passed a resolution emphasizing the importance of tribal involvement in the siting and licensing of nuclear waste facilities, and the need for government recognition of the unique legal and trust status of Indian tribal interests in these decisions. Several Indian tribes and organizations have passed similar resolutions.

We believe that S. 1662 reflects the committees' understanding of the need for tribal representation in the national nuclear waste program. CERT supported the mechanism for tribal participation that was developed last year by the Environmental and Public Works Committee, and we are pleased to see that many of the key provisions have been retained in title VII of this bill. We see four general benefits to the approach taken in the bill.

First, S. 1662 insures the direct representation of affected Indian tribes. This is important for both practical and legal reasons. Time and again, Federal agencies have decided to store radioactive materials near Indian lands without notifying or consulting with the affected tribal government.

Too often, Federal officials incorrectly assume that State agencies can speak for the tribe. As the committee knows, State officials do not have the legal authority to represent the views of a tribal government, especially in matters involving our resources and the welfare of our people.

Providing tribes a direct and separate role in the nuclear waste program is consistent with judicial guidelines, self-determination policies, and the administration's commitment to a government-to-government relationship with Indian tribes.

Second, this bill has clear and workable standards for determining when an Indian tribe may participate in the decisionmaking process. The definition in section 201(15) has several advantages over the approach in the other bills pending before the Congress.

Indian tribal rights which have been reserved through statutes, treaties, Executive orders, judicial decision, or other applicable law have been accorded a special and protected status by both the Supreme Court and the Congress.

Numerous judicial rulings have imposed strict standards on any Federal action that could adversely affect these rights. These protections apply regardless of whether the project is on or off the reservation.

By linking tribal representation to these legally identifiable rights, the committees have insured that the scheme will be consistent with such judicial standards. Another advantage to this approach is that it promotes cooperation between tribal and State governments. Both parties can participate concurrently, with each addressing their respective interests.

Third, S. 1662 provides for congressional review of the objections of an affected tribe or State which cannot be resolved through administrative remedies. Hopefully, any adverse impacts or other problems can be solved or settled by negotiation.

Some issues may arise, however, that involve the fundamental rights of a tribal or State government. Congress is the proper legal and political forum to resolve such matters.

And fourth, the cooperative agreements should provide an effective vehicle for Federal-tribal consultation. CERT favors the one-on-one relationship maintained by a cooperative agreement. This approach also has the flexibility needed to tailor the program to the unique needs and circumstances of an affected Indian tribe.

In short, CERT generally supports the mechanism for tribal representation established by title VII of the bill. We are concerned, however, that several related provisions in S. 1662 may undermine the effectiveness of our participation. Our major concerns are as follows:

We feel that the President must have the benefit of our views before deciding which site should go forward to the license application stage. Under section 405 of the bill, our recommendations would be interpreted and presented only at the discretion of the Secretary of Energy. We believe that the interests of both the Federal Government and the affected tribe or State would be better served by direct State and tribal input.

If a tribe or State has legitimate objections, the Federal Government can avoid the delays and political consequences of having Congress reverse the President's decision.

From our perspective, filtering our views through DOE is not consistent with a meaningful Federal-tribal partnership. We also are concerned that if our recommendations are not considered at this juncture, the right to petition Congress may be too little too late.

CERT strongly urges the committees to expand section 405(a) to require DOE to provide the President with supporting documentation on the site, including a statement of recommendations by the affected tribal and State governments. Legislative language similar to that in the bill passed by the House last year—reintroduced as H.R. 3809, section 114(a)(1)—could correct this problem.

We also would like to seek clarification of the committee's intent in section 708, regarding the effect of a congressional resolution on the Nuclear Regulatory Commission.

It is our understanding that section 701 would preclude DOE from applying for a license for a site if the Congress passes a resolution upholding the objections of an affected tribe or State.

Section 708 states, on the other hand, that a congressional resolution would not be binding on the NRC in any licensing action pertaining to the facility which is the subject of such resolution.

These two sections appear to be mutually inconsistent. If Congress disapproves a site, that disapproval should be binding on all Federal agencies. We urge the committees to clarify this point by inserting language similar to that in section 114(a)(3) of H.R. 3809 into section 405 of this bill.

Another issue regarding tribal participation is the absence of funding for the cooperative agreements between DOE and affected tribes and states. While much of the activity under the agreement will involve joint review, it is imperative that the tribal and State governments conduct independent assessments of the impacts of the repository.

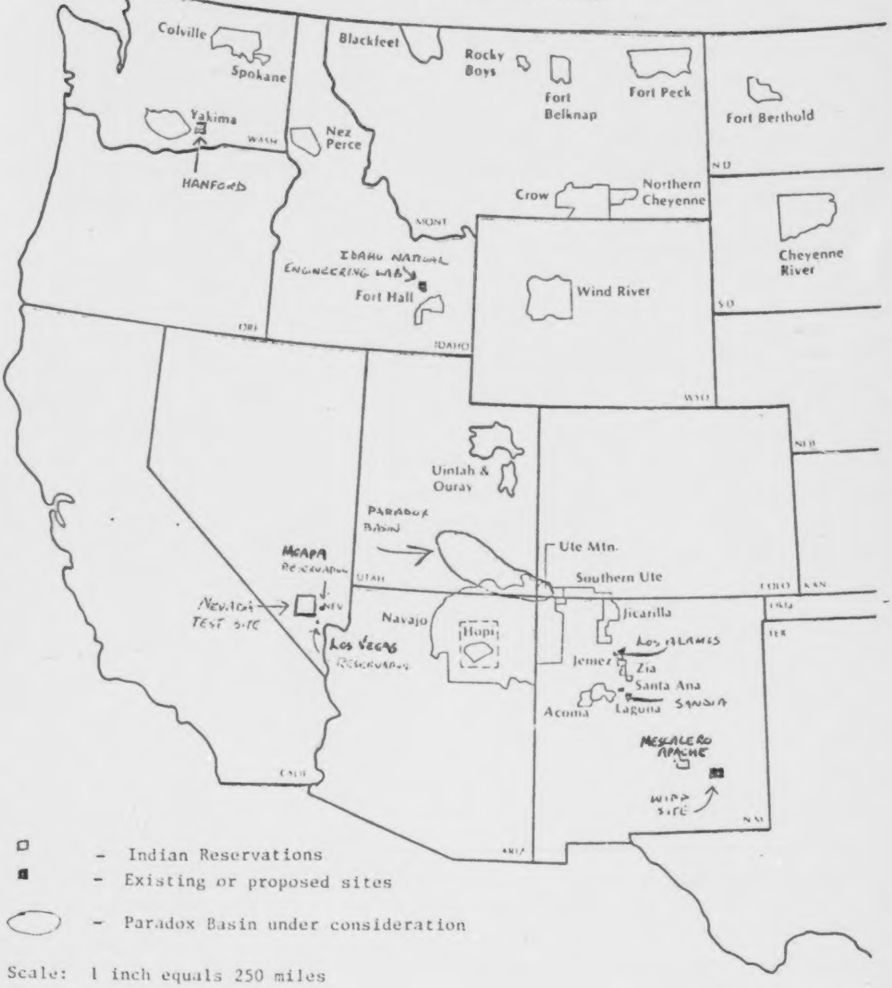
Most tribal governments simply do not have the financial and staff resources to undertake such studies. CERT feels that it is necessary and appropriate for DOE to provide grants to tribes and States to carry out our responsibilities under the cooperative agreement. Here, too, the provisions in H.R. 3809 may be a useful model.

As a final comment, we feel that S. 1662 would benefit from adding the provisions in the House bill which provide for judicial review of the decisions and actions of the Federal Government.

[The attachments to Mr. Jim's statement and the supporting documents follow:]

EXISTING OR PLANNED REPOSITORY SITES
RELATIVE TO INDIAN LANDS

CERT Member Tribes


Colville
Spokane
Yakima
HANFORD
WASH
Nez Perce
Blackfeet
Rocky Boys
Fort Belknap
Fort Peck
Fort Berthold
ND
Crow
Northern Cheyenne
MONT
Cheyenne River
SD
IDAHO NATIONAL ENGINEERING LAB
Fort Hall
IDAHO
ORE
Wind River
WYO
NEB
Uintah & Ouray
PARADOX BASIN
UTAH
MOAPA RESERVATION
NEV
Nevada TEST SITE
LOS VEGAS RESERVATION
Navajo
Hopi
Ute Mtn.
Southern Ute
COLO
KAN
OKLA
Jicarilla
TEX
LOS ALAMOS
Jemez
Zia
Santa Ana
SANDIA
Acoma
Laguna
MESCALERO APACHE
WIPP SITE
N.M.
CALIF
ARIZ

□ - Indian Reservations
■ - Existing or proposed sites
⬭ - Paradox Basin under consideration

Scale: 1 inch equals 250 miles

COUNCIL OF ENERGY RESOURCE TRIBES
RESOLUTION 80-4
Radioactive Waste Management

WHEREAS, radioactive wastes have been generated for over 30 years by nuclear power facilities, military activities and certain medical, industrial and research activities; and

WHEREAS, these wastes present a significant threat to human life and health; and

WHEREAS, the federal government is now attempting to develop a comprehensive plan and procedure for disposing of radioactive waste; and

WHEREAS, the federal government is attempting to involve the public in radioactive waste management decisions;

NOW THEREFORE BE IT RESOLVED that the Board of Directors of CERT recommends that any potentially affected Indian tribe must fully participate in waste disposal decisions in affect now and hereafter.

BE IT FURTHER RESOLVED, that the federal government must recognize the unique status of Indian land and the right of every tribe to make decisions regarding the use of land and resources within its jurisdiction.

CERTIFICATE

The undersigned Chairman and Secretary of CERT certified that the above resolution was adopted by the Board of Directors of said Council at a meeting of said Board duly called, held the 18th day of March, 1980.

Chairman

Secretary

CONFEDERATED TRIBES AND BANDS
Yakima Indian Nation

POST OFFICE BOX 151
TOPPENISH, WASHINGTON 98948

April 11, 1980

The Honorable Gary Hart, Chairman
Subcommittee on Nuclear Regulation
Committee on Environment & Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Hart:

It is a real pleasure for me to promptly forward into your hands the attached copy of the Yakima Tribal Council Resolution # T-59-80 passed unanimously last Thursday, April 3, 1980. This Resolution takes an important step forward from the Resolution of # T-27-79, which banned the transportation of radioactive waste within the Boundaries of our Reservation.

The new Resolution recognizes that the problems of safety for our People and the Protection of our Treaty in the Nuclear Age requires that we Yakimas come to terms with the fact that Yakimas must be active for safety both in and beyond our Reservation Borders. This Resolution asserts our Rights in that role and promises that we will fulfil the obligations that are implicit in those Rights.

During our deliberation, Gary, the Tribal Council was mindful of the important role you have played. We thank you for listening, for your constructive response, and for your present dedication to writing Indian participation into Nuclear Waste Repository Regulation Law.

We trust that this Resolution, will help you in your efforts for sound nuclear waste repository regulation. In closing, we invite you to review your stand concerning the role of American Indian Nations in respect to the four concepts which we consider vital:

1. The Yakima Indian Nation must be armed with the information and counsel which will allow them to involve themselves in the planning for nuclear waste disposal when planning is still fluid and before decisions have been made.

2. The Yakima Indian Nation has Rights which are Separate and Apart from the State of Washington.

3. The Federal Agencies of the Executive Branch must be guided as to the proper treatment of the Yakima Indian Nation by sound regulations set down by the Congress of the United States, the authority which made the Treaty arrangements with our Forefathers.

4. Although Federal agreements with Native Americans present a complex,even confusing pattern of law, it is incumbent upon all to see that the process for Indian participation in nuclear planning and regulation supercedes and is clearly separate from whatever relationship is decided for States in that process. It is our belief that in order to uphold our Treaty, the legislation will have to spell out in concrete terms the process for "consultation and concurrence" and "non-concurrence" for Tribes whether or not it is decided that States have those rights.

The Yakima Indian Nation looks forward to the continued cooperation and mutual support which you have established and which your staff has been carrying out. The problems of Nuclear Waste Repository Regulation have been assigned to the Land and Irrigation Committee of the Tribal Council, under the Chairmanship of Roger. Jim. I have the honor of serving on this Committee and we as a group will continue our close and effective work with you.

Respectfully yours,

Russell Jim

Russell Jim
Tribal Councilman

Enclosure

cc: President Jimmy Carter
Senator Abraham Ribicoff
Senator John Glenn
Governor Richard W. Riley, South Carolina
Peter McDonald, Chairman Navajo Nation

CONFEDERATED TRIBES AND BANDS
Yakima Indian Nation

POST OFFICE BOX 151
TOPPENISH, WASHINGTON 98948

February 4, 1980

Honorable Gary Hart, Chairman
Subcommittee on Nuclear Regulation
Committee on Environment & Public Works
United States Senate
Washington, D.C. 20510

Attention: Keith Glaser

Re: National Nuclear Waste Regulation and Control Act of 1979 - S. 1521 - Amendment No. 646

Dear Senator Hart:

You have asked the Confederated Tribes and Bands of the Yakima Indian Nation to submit proposed amendments to Amendment 646 of S. 1521. We ask that you understand as you read what follows that the Yakimas are under two burdens:

1. In suggesting wording for a Senate Bill, it is assumed that provisions are general in nature and apply to everyone. It is also assumed that all those who have a right to be consulted have in fact been consulted and that the generalized statements of the bill represent as well as can be expected all input. In this particular case the only Indian tribe consulted has been the Yakima Indian Nation, who do not pretend to speak for other Indian people. The Yakimas also do not wish their response in this letter to hide the fact that the Yakimas are well aware of the fact that other Indian people have not been consulted as they should have been.

2. The Yakimas in responding for themselves only are hampered by insuffficent time to obtain expert advice and to consider all the implications presented by the question of nuclear waste repository regulation in areas vital to the Yakimas.

We believe that central to any amendment concerning Indians must be an acceptance of the flaws discussed above and a way provided by Congress to correct this belated consultation with Sovereign Indian interests.

The wording of such a provision might run as follows:

> Section 7 of Amendment 646
>
> "(d) 1. Where the location of a contemplated site for a facility for the storage or disposal of low or high level radioactive waste, non-high level transuranium contaminated waste or irradiated nuclear fuel is less than one hundred miles from the borders of an Indian Reservation or other lands in which Indian tribes have reserved usage rights, or where this reserved area could be affected; the tribal governing body or bodies within said reserved area or areas shall be furnished information specified in subsection (a), and subsections (b) and (c) shall be applicable to the approval or disapproval by said tribal governing body or bodies.
>
> 2. It shall be recognized by all administrators involved in nuclear waste repository regulation that past policies are subject to review by Indian tribal governing body or bodies under (d. 1) above. Actions and policies previously established unilaterally without consultation with Indian authorities shall not be grandfathered or considered precedent for future actions.
>
> 3. It shall be incumbent upon nuclear waste repository authorities to review all past policies and actions for the purpose of retrieving to whatever extent possible the results of past policies and actions which violate the Rights of Sovereign Indian People under (d. 1) above.
>
> 4. It is recognized that Sovereign Indian Peoples have a variety of treaty arrangements with the Federal Government which make consultation with them concerning the location and regulation of nuclear waste repository sites mandatory. It is also recognized that no State authority or Federally-appointed authority may speak for these Indian People or make decisions concerning their Rights. None of these authorities must be allowed to interfere in the time-honored relationship between Indian Peoples and the Congress of the United States. Since there has been insufficient time to

> date to allow for this consultation, a period of three months time will be dedicated to accomplishing it and all issues that may be affected by this consultation will await the results of this consultation between the Federal Government and Indian tribes under (d. 1) above."

There is wording in Section 4 of the Amendment that provides: "the Secretary shall give preferred consideration to sites located within boundaries of federal lands containing a nuclear waste storage area in existence prior to the enactment of this Act." This wording must be stricken from the bill. We can imagine many circumstances where Indian Rights have already been violated by the use of Federal lands for nuclear waste disposal. In addition to these imaginings, are the facts in our very own case. There is a body of expert opinion which states that contamination of Hanford already violates the protective covenants guaranteed by our Treaty of 1855. Therefore the contribution of the Yakima Indian Nation to amending this bill is colored by the fact that our Rights have already been violated unilaterally by the Federal Government. Our response therefore is addressed both to the prevention of further violation of our Rights and to a planned and systematic retrieval of past violations. It is in the light of this double responsibility on the Yakimas that we require that the sentence quoted above be stricken, for in it is perpetuated a policy which ignored completely submission of the issues involved to Indian consideration.

Pressures of time which are making it difficult for you to hear the Native American Indian Voice on the issues of nuclear waste repository regulation cannot excuse failure to include consideration for Indian Rights in this bill.

I enjoyed the exchange with you during my testimony. We wish you well in pressing your bill before the Senate. We hope the fact that you have sought Indian participation and the other bill sponsors have not seen fit to do so will contribute to the success of your bill on the Senate floor.

Sincerely,

Russell Jim

Russell Jim, Chairman
O.E.D.P. Committee
Yakima Tribal Council

Concur: Johnson Meninick, Chairman
Yakima Tribal Council

CONFEDERATED TRIBES AND BANDS
Yakima Indian Nation

POST OFFICE BOX 151
TOPPENISH, WASHINGTON 98948

February 19, 1980

The Honorable Gary Hart
Senate Sub-Committee on Nuclear
Regulation
Committee on Environmental and
Public Works
Washington, D.C. 20510

Dear Gary:

Keith Glaser has indicated that the mark-up of your Nuclear Waste Regulation Bill might be helped by some background information and documentation on the Federal/Indian Relationship and by some general observations for which there was no time in our letter of February 4, 1980 which summarized essentials. What follows includes some legal references for further study.

A. Pre-Constitutional History:

1. The Papal Bull of 1565 Sublima Deas which dealt with sovereignty in the Western Hemisphere stated that Indigeous Indian People retained an Inherent Sovereignty over their Lands and that the European Powers were therefore obliged to negotiate with them over issues of sovereignty.

2. The Constitutional Convention by its first act confirmed that Indigenous People had Rights to persons and property.

B. The Constitutional Ground:

1. The Federal/State Dual Sovereignty with each supreme within the area of its sovereignty is generally well understood.

2. The Federal/State/Indian Nation Tri-Sovereignty established by our Founding Fathers where Indian Sovereignty fits into the scheme of Government is not so widely understood. For a good description of this Reserved Inherent Indian Sovereignty Chief Justice Marshall's decision in Worcester v. Georgia, 6 pet 515 (1832) is the recognized authority as

to the Indian Reserved Rights of control over their destiny and their Lands. Also see Federal Indian Law, Department of Interior, (1958) Chapter II and VI, and M. Price, Law and the American Indian, Bobbs-Merril, (1973) Chapter I. The Reference Section, Library of Congress is the key resource center.

C. Lands Ceded and Reserved by Indians:

1. The Treaties: Under the Tri-Sovereignty System of Government (A, 2 above) Indian Nations and Tribes established control over their own People and occupied Lands. By Treaty or other agreement with the Federal Government Indian Nations and Tribes ceded some of the lands they occupied to the United States and agreed to become dependent Nations under International Law.

2. Ceded and Reserved: Just as any grantor may reserve certain rights in the lands granted and reserve the total control over use of certain lands not conveyed, so did the Indians grant or cede certain lands to the United States reserving certain Rights in these Ceded areas and reserve total use and occupancy in the Lands not granted or Ceded. These Lands not ceded are commonly called Indian Reservations. The Reserved Rights of Use in areas Ceded are just as real. The Rights that Indian Tribes have in regards to both areas exist not by grant from the United States but by the fact that they were Reserved by this Sovereign Power. See United States v. Winans, 198 US 371 (1905).

D. Reserved Rights:

1. The Right to Control Their Internal Affairs was reserved by Indian Tribes. By acknowledging dependency on the United States, Indians submitted their power to make war, enter into International agreement and to control Inter-Tribal foreign commerce.

2. Indian Natural Resources: Indians agreed to place some of their natural resources in a trust relationship with the United States. The other Inherent Sovereign Powers were retained. See United States v. Wheeler, 435 US 313 (1978).

E. Areas of Justifiable Indian Concern:

The Issues of Use: Any use concerns us that may interfere with the exclusive Right or Use Right made in either our totally Reserved Lands or Lands in which we have Reserved Rights. These Rights are Separate and Apart from any rights of control or interest a State may have in the same area. Please see: United States v. Ahtanum. Irrigation District 236 F2d 321, Cert. denied 342 US 988; 330 F2d 897, 338 F2d 307, Cert denied 381 US 924. United States v. Washington, 47 LW 4978 (1979).

2. The Issue of Both Quantity and Quality in Reserved Rights:

Certainly nuclear contamination is the greatest threat to quality in our Reserved Rights. These Rights concerning water and its products are set out in United States v. Adair No 75-914 (U.S.D.C. Oregon) opinion Cited September 27, 1979. United States v. Anderson No. 3643 (U.S.D.C. Eastern District, Washington) opinion dated July 23, 1979.

We trust that the above summary will help in your presentation to others of points made in our letter of February 4, 1980 concerning any Nuclear Waste Disposal Legislation. Let me close with these broad convictions which gave rise to those points.

1. Indian Sovereign Authority must be brought into Nuclear Waste Disposal Planning at the very beginning so that the various rights and prerogatives involved can be negotiated in the light of established Tri-Sovereignty Government.
2. Indian Right to Non-Concurrence must be separate and apart from any State.
3. Congress must be the sole mediator of dispute.
4. Congressional stipulations as to conditions which control the inclusion of Indian Sovereign Authorities must be sufficiently specific that adminstrators of the Law will exercise no undue influence.

The Honorable Gary Hart
February 19, 1980
Page Four

I want to thank you, Gary, for your stance in the long history of Indian Sovereign Rights. If further documentation is necessary over and above the source material identified above, or if further discussion is necessary after your staff has read the material, just let me know. The Yakima Indian Nation wants to be of every assistance in your fine efforts on behalf of all American citizens.

Sincerely yours,

Russell Jim

Russell Jim, Councilman
Yakima Indian Nation

RJ/mm

Enclosure: Letter of February 4, 1980

YAKIMA INDIAN NATION
ORAL TESTIMONY

DEPARTMENT OF TRANSPORTATION

APRIL 18, 1980

SEATTLE, WASHINGTON

PUBLIC HEARINGS:

HIGHWAY ROUTING OF RADIOACTIVE MATERIAL

AGENCY:

MATERIALS TRANSPORTATION BUREAU (MTB),

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION,

DEPARTMENT OF TRANSPORTATION

ROGER JIM, SR.

TRIBAL COUNCILMAN

First let me introduce myself, I am Roger Jim, a member of the Tribal Council of the Yakima Indian Nation. The Yakima Indian Nation, a Sovereign Nation within the sovereign United States as established by Treaty with the Federal Government in 1855 on the Walla Walla, has the solemn duty to protect our Reservation, part of the Lands occupied by our People since Time Immemorial.

The Creator has ordered that we live in harmony with Mother Nature. We who represent our People treat with deep concern the subject of this Public Hearing, the transportation of nuclear materials. In this nuclear age the Yakimas stand not for or against nuclear energy, but for Safety and the and Protection of the Balances of Nature so that generations yet unborn may live on this earth in peace and health.

Our deep concern and determination to play our proper role as a Sovereign Nation was first expressed in June of 1979 when the Tribal Council passed unanimously the enclosed Resolution banning the transportation of nuclear wastes, residues, fuels, products and by-products from nuclear material across or within our Borders by any conveyance, whether by land, rail, air, or water. I will read the Resolution. (T-72-79)

Since last summer we have been actively involved in working with members of Congress in the preparation of future laws concerning the role of the Yakima Indian Nation in Nuclear Waste Repository Regulation. This expansion of our activity in this field is summarized in a second Resolution passed unanimously by the Tribal Council on April 3, 1980. I will [illegible] (Resolution T-50-80)

RESOLUTION

T-72-79

WHEREAS, the Yakima Indian Nation and its governing bodies have the responsibility for preserving the health and welfare of citizens within its boundaries; at its usual and accustomed hunting and fishing sites and various other locations described herein; and

WHEREAS, the President of the United States through the Secretary of the Interior for the United States has on official record the legal description of said boundaries and areas mentioned herein; and

WHEREAS, nuclear wastes, residues, fuels, products and by-products from nuclear material have a real and distinct health hazard to all the residents within and at the areas mentioned herein; including hazards to traditional, cultural, and religious sites throughout the Yakima Indian Nation and at its usual and accustomed hunting and fishing sites; and

WHEREAS, the Yakima Indian Nation, pursuant to its Treaty of 1855 with the United States (ratified) possesses sovereign authority to exercise control and dominion within its said boundaries and at its usual and accustomed hunting and fishing sites and other sites mentioned herein.

NOW, THEREFORE, BE IT RESOLVED that nuclear wastes,residues, fuels, products and by-products from nuclear material are, from this day forward NOT PERMITTED within the borders of the Yakima Indian Nation; nor are said nuclear material permitted to cross said lands by any conveyance, whether by land, rail, air, or water;.

BE IT FURTHER RESOLVED that because of Treaty and court case rights to access, ingress and egress, as to hunting, fishing, relgious, and food gathering sites in the various Treaty Ceded areas of the Yakima Indian Nation and because of the Yakima Indian Nation's concern for the health, welfare, and safety of their people when using said ceded sites and areas, the Yakima Indian Nation records this day their concern over any nuclear wastes,residues, fuels, products and by-products from nuclear material being introduced by whatever method or manner into the Yakima Indian Nation various Treaty ceded areas.

DONE AND DATED on this 6th day of June, 1979 by the Yakima Tribal Council, meeting in regular session at the Governmental Offices of the Confederated Tribes and Bands of the Yakima Indian Nation, Toppenish, Washington, by a vote of 9 for and none against (1 not voting).

Watson Totus
Watson Totus, Chairman,
Yakima Tribal Council

TTEST:

Joe Sampson
oe Sampson, Secretary,
akima Tribal Council

RESOLUTION

T-59-80

WHEREAS, since time immemorial we have had the duty of our Creator to protect the Environment for all generations yet unborn; and

WHEREAS, there is debate among qualified experts concerning possible danger of contamination from hazardous and nuclear materials and the Yakima Indian Nation is particularly concerned in this debate because: our Reservation is in the biopathway thirteen (13) miles within from Hanford: 90% of the Hanford Reservation lies within our Ceded Area over which we have reserved use and religious rights: and because the Columbia River, part of the hydrologic flowpath of Hanford, contains water and fish over which we have rights; and

WHEREAS, there has been over the last six (6) months ample proof of the need for daily supervision and decisions at the highest levels of Tribal authority as evidenced by these facts: that at the Federal level we are responsible for an ongoing effort in Congress to build into the law our rights as a Sovereign Nation for "consultation and concurrence" and "non-concurrence" separate and apart from states and equal to the Federal authority over nuclear waste disposal; that the President of the United States has established a Commission to formulate nuclear waste disposal policy; that Washington State Government clearly intends to make Hanford the instate respository for nuclear waste and without government to government consultation with the Yakima Indian Nation that the Yakima City Council is establishing a Task Force to review emergency response capabilities to transportation accidents; and

WHEREAS, there is pressure and need for Tribal Council oversight to be considered unified, broadly based and promptly timed so as to allow the Tribe to properly act and react to the constantly changing situations, challenges and opportunities.

NOW, THEREFORE, BE IT RESOLVED by the Yakima Tribal Council meeting in regular session at the Governmental Offices of the Confederated Tribes and Bands of the Yakima Indian Nation, on this 3rd day of April, 1980, a quorum being present, that the Land, Irrigation and Roads Committee be designated the responsibility of addressing the interest, long range and short range as expressed in this resolution.

DONE AND DATED on this 3rd day of April, 1980 by the Yakima Tribal Council by a vote of 12 for and none against.

Johnson Meninick, Chairman,
Yakima Tribal Council

ATTEST:

Joe Simpson

Joe Simpson, Secretary
Yakima Tribal Council

We have included the reading of this last Resolution verbatim in this presentation to insure that your Board will include the Yakima Indian Nation in every step of its planning and provide us with the necessary opportunities to exercise our Sovereign Rights concerning any rules that are made. The Yakima Indian Nation is determined to protect its Lands, Water, Air and Foods from nuclear contamination. The reason you find us here today before you testifying is evidence of this fact. Know that you have not seen the last of us. We intend to follow this process through until the conclusions are made.

We have studied the new rules proposed by the DOT and wish to make the following statements concerning those proposed rules:

1. We hear eminent scientists disagree over levels of radiation dosage that are acceptable even from the smallest transportation spill. We therefore cannot be confident in the assurances of "safety" contained in the new rules.

2. The new rules urge that transportation routes be kept as far as possible in rural areas, presumably because accidents there threaten fewer people. We believe Rural Citizens have the same right to protection from nuclear accident as Urban Citizens. The new rule tends to create a New Disadvantaged Minority - rural people who are obliged to bear more risk of nuclear injury than do their urban brothers and sisters.

3. The new rules seem to ignore the fact that there are no emergency response personnel - particularly in rural areas - ready and able with the knowledge and expensive equipment to respond to nuclear spills. Lack of such technological

and specialized personnel and equipment can turn even a small accident into a disaster. The rules also make no money available to pay for cleanup costs, costs which can be prohibitive. In addition we hear experts argue that we cannot even have confidence in the technology or equipment available today for transportation spill clean-up.

4. The new rules continue the policy of secrecy about DOE commercial and military nuclear shipments. Whatever can be said about secrecy, this policy of no placarding of DOE nuclear shipments guarantees that local people will have no warning, making protection of the shipments and clean-up in case of accident beyond the powers of those exposed to the danger.

5. The new rules fail to address the issue of responsibility and firm centralized control which would be absolutely necessary if a transportation accident should occur anywhere along the route. A variety of Federal agencies are each given a piece of the responsibility. This does more to spread the blame of disaster than to provide responsible protection of the Public Good on the spot. We see this lack of immediate control at the accident site as a promise for multiple human error stimulated by an assurance that no one Agency or person can be blamed for the result.

6. Finally the Yakimas consider the new rules' references to "evacuation" as meaningless when applied to our Indian People. If our Reservation is contaminated by nuclear accident, where could our People go? That awful question underscores all the determination of the Yakima Indian Nation to press for Safety in all nuclear matters. The Yakimas believe that their stand is in defense of all citizens of the United States, Indian and non-Indian alike.

Thank you.

Roger Jim, Sr.

WRITTEN
STATEMENT

BY RUSSELL JIM, COUNCILMAN
YAKIMA INDIAN NATION

BEFORE THE
SUBCOMMITTEE ON NUCLEAR REGULATION
OF THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
December 20, 1979

Mr. Chairman, Members of the Subcommittee:

The Yakima Indian Nation is deeply disturbed with the future plans for the Hanford Nuclear Reservation as presently put forward by the representatives of Rockwell International at their Annual Technical Information Meeting December 5-6, 1979. We feel strongly that steps of vital importance to the very existence of our People are being taken, and are about to be taken without proper regard for contrary expert opinion, for the safety of all peoples in the area, and for the federal obligations contained in the Treaty with the Yakima Indian People.

As the attached maps dramatically illustrate the Yakima Indian Reservation is an important part of the fifty (50) mile circle around the Hanford Reservation within which the law requires that workable plans for evacuation be developed. The Yakima Indian Nation sees this concept of evacuation as a cynical and empty phrase when applied to our Indian Reservation which was guaranteed to us in perpetuity by the Treaty of 1855. The Yakimas are not only the largest land owners within the fifty (50) miles circle but we are the only ones with a Federal Treaty. We are the only ones who can say without question that there is no place to which we can evacuate.

Below in summary are positions taken by the United States Department of Energy through Rockwell International. Following each position is stated the reaction of the Yakima Indian Nation.

1. That "set backs" from populated areas of waste dump sights, which vary with the size of the populated areas are an adequate safety measure.

The Yakima Indian Nation believes that this position falsely assumes that:

a. Evacuation capability is a viable solution for those threatened with nuclear accident.

b. Citizens in a less densely populated area may properly be more threatened with danger from a nuclear accident than citizens in urban areas. It would be a violation of the U.S. Constitution for the urban majority to force greater nuclear Hazards upon a selected rural minority simply because they are assumed to be evacuatable. Such an action creates a new disadvantaged minority: all those of all cultures who are selected out for such treatment.

2. That the geology of the Hanford Reservation is safe for all the contemplated uses.

The Yakima Indian Nation believes that this position ignores an impressive body of scientific opinion in the United States which denies that Hanford is "Geologically Safe".

3. That past "Land use" justifies proceeding at Hanford as planned.

The Yakima Indian Nation never was consulted in the original placement of the Hanford Reservation, nor in its subsequent growth and development. New

> [illegible] knowledge has revealed the increased dangers of radiation. Recent practical experience with nuclear accident, and the limitations on human capacity to avoid error have radically changed the situation for those who live near an area of nuclear industry. These are vital developments which now reach out in a new way to adversely affect those near Hanford, those with no responsibility for the original placement of Hanford. These new factors make empty any argument based on now outdated "land use"."

4. That since within the Hanford Reservation there is already nuclear contamination, projected plans for more of the same are sound and logical.

Certainly this is no argument upon which to base sound future policy. The Yakima Indian Nation has heard from expert opinion that the Hanford Reservation is already a radiation danger beyond its borders and that the Columbia River has suffered damage which for all practical purposes must be considered permanent. Since present radiation dangers are a matter of debate among experts, adding contamination to contamination may well be a serious error.

5. That it is proper policy to use for waste disposal areas known beforehand by DOE officials to be sacred ground to the Yakima Indian People and in addition to do so without notification of the Yakima Indian Nation.

The Yakima Indian Nation resents and abhores

> this violation of Indian sacred areas. The cynical stance of local officials is best summarized by the statement of one of the local Rockwell-Hanford officials who admitted prior knowledge that the ground was sacred to the Indians and with a laugh said, "Well, it wasn't sacred to DOE".

I will be happy to answer any further questions that you may have regarding the concerns of the Yakima Indian Nation. You may contact me at (509) 865-2255 Ext. 371.

Sincerely,

Russell Jim, Councilman
Yakima Indian Nation

STATEMENT
BY RUSSELL JIM, COUNCILMAN
YAKIMA INDIAN NATION
BEFORE THE
SUBCOMMITTEE ON NUCLEAR REGULATION
OF THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
JANUARY 24, 1980

Mr. Chairman, Members of the Subcommittee, my name is Russell Jim, Tribal Councilman, Yakima Indian Nation, State of Washington. I am chairman of the O.E.D.P. (Overall, Economic, Development, Planning) Committee which also includes Timber and Range management. I want to thank you on behalf of the Yakima Indian Nation for this opportunity to comment on the subject of nuclear waste regulation. The Tribe feels there has been great advance from a position of just a few weeks ago, in that this Committee has seen fit, in the course of these proceedings, to hear from Native Americans on the controversial subject of nuclear regulation. As a culturally oriented People, the Yakima Nation believes that out of Indian cultures come fundamental beliefs and values absolutely essential for the preservation and protection of Life for Indian and non-Indian alike.

Now as to the questions you have submitted. The Yakima Indian Nation responds to these questions from a position of a Sovereign Nation within a potential Host State.

It is our experience that throughout the United States the Federal Government and Host States have chosen to place nuclear plants or waste repositories in that part of a Host State where Indian Reservations lie and this without consultation with Indian Reservation authorities. It is a fact that Indian Reservations are a Federal matter and therefore State government cannot represent Indian Tribes and Reservation Land matters before your Committee.

The issues in question number one, (a) through (f) are all affected by the fact that the questions raised here are directed at the various aspects of State veto power over Federal decisions. We are here in recognition of our direct relationship to the Federal Government. Our objective is to continue to provide input concerning nuclear regulation into the Federal plan. The issue of State veto in that plan remains open to us.

The Yakima Nation has a negotiated Treaty with the Federal Government who has the fiduciary obligation to protect that Treaty. By placing the hazardous radioactive wastes near our Reservation, they may well undermine our Treaty rights by threatening a destruction which the implications of the Treaty show to be illegal. Our Lands may be contaminated irretrievably by action on nearby non-Indian Land or from faulty transportation of radioactive wastes. I believe many of you gentlemen will realize that for Native Americans, "Evacuation" from their Lands is meaningless.

Most of Hanford lies on our ancient Ceded Lands and our Treaty gives us certain rights of ingress and egress over that particular area. There is something you need to understand that is unique between my People and yours. Yakima Indian People do not get most of their food supply from the local A & P or Safeway store. The practice of gathering wild and natural foods means that my People are more vulnerable than you to contamination of those foods. Because of Hanford's geographic location, the first foods are gathered there. The Native American Freedom of

Religion Act further protects Indian People in these ancient acts of devotion. Our Religion and Culture are deeply interwoven with the gathering of our foods the Creator has provided us. Our blood has melted into that particular part of the Earth where our People are buried.

Now it is apparent that the nuclear industry has not been able to control Nature, nor the seeping and spread of nuclear contamination into the soil, water, air, that which affects our food supply. We ask ourselves the question, "What is this deadly pollution doing to the health and safety of all people living in this region?" You must remember Central Washington is a great food - producing region.

We earnestly believe that in all the notification, planning, and decision-making mechansims of the Government, there needs to be a systematic way for you to invite us early into all procedures regarding nuclear issues, Hanford in particular - so that our Voice may be heard.

We may foresee a time when a Federal plan which has had Indian input would plan to move such facilities away from Reservations and that States could use their veto as a method of perpetuating the ever present threats to our Treaty. We see State veto power without equal Indian veto power as a potential threat to the Indian/Federal relationship. This threat is evidenced right here in this room because until today at your invitation to us, State government has been recognized as speaking to the Federal authority on our behalf on this issue. Washington State has accepted this position without consulting us. The maintenance of such a position may serve the State's purpose in other issues which are at present matters of litigation between ourselves and Washington State. Such precedent-setting ideas, let me assure you, also pertain to other Indian groups in our State as well as Indian groups outside our State with their respective States.

Question number two asks what role a neighbor State should play when a nuclear waste repository exists near its border. This question envisions the very condition which now exists within our home state of Washington. Hanford is surrounded both upwind and downwind by eight Indian Reservations. The Yakima Indian Nation is 13 miles from Hanford. All of these Reservations deserve the same consideration as one of the States in the Union and should be involved in the planning and on-going operations of repositories.

Question number three asks whether we favor a Federal override of a State veto and how it might be implemented. This question has been partly addressed under number one above. Indian People taking part in nuclear waste repository planning and listening to the debate between Federal and State authorities would of course remain free to support whatever ideas, from whatever source, will best protect Indian rights. It is that participation in planning which is essential and the over-ride issue to us is still an open question.

Question number four asks us to comment on the role the Nuclear Regulatory Commission should play here. The Yakima Indian Nation and other Indian People are not in a position to respond to this question because we've never been asked to take part in the planning stages. It is essential that Indian Nations, speaking through their elected representatives, be in a position to respond with consideration and wisdom to these issues and many others which you do not have time to raise here. That we cannot do so now is direct evidence of the lack of wisdom in the exclusion of Indian People from the planning stages of nuclear waste disposal.

Four steps must be taken to correct the present situation:

1. Native American Indian representatives must be invited to take part in nuclear waste repository planning.

2. Native American Indian People must be given time to discuss the subject among themselves and like all citizens, we may have varying opinions on this subject and these varying opinions must be honored by time for counsel together.

3. The Indian Voice must be heard as a result of a Federal request to do so, with a system of dates and ways of response so that our council may be expeditious and take place in an atmosphere of urgent importance.

4. Measures must be taken so that Indian participation in the planning stages with Federal and State officials, will have the benefit of scientific and legal expertise. This is most

necessary, because we hear responsible scientists and lawyers who openly disagree on the issues involved.

The issue of nuclear waste repositories has created a New Minority which needs to point out to the Majority that all citizens of the United States have a right to equal protection under the law from harm to life and property. This New Minority consists not of just Indian People but of all groups of people living in rural areas near nuclear waste repositories. The present Majority likes to describe these rural, food-producing locations as, "The best place for nuclear waste."

In closing I would like to emphasize:

The Yakima Indian Nation takes a positon neither for nor against nuclear energy - but for safety.

We, the Yakima Indian Nation, sincerely believe that the vital issue of nuclear waste disposal, which now confronts our country and the world, needs the Voice of the Native American Indian. From time immemorial we have known a special relationship with Mother Earth. We have lived in the balance of Nature under the laws of the Creator. We have a religious and moral duty to help protect Mother Earth from acts which may be a detriment to generations of all mankind. I am one of fourteen Yakima Tribal officials elected by my People to represent them on such matters as today. They, the People, do so with the instructions, "Preserve and Protect this Land for those children yet unborn."

ALL DELEGATES !

The Indian Ethic concerning the preservation of Nature is an essential part of the fight against nuclear and toxic chemical contamination.

For a specific example which you should support here at the Convention and when you go home -

TURN THIS PAGE →

National Resolution, N.A.I. 1980, to be offered for signatures by all Indian Nations vulnerable to nuclear contamination, to be presented to the President and the Congress of the United States:

WHEREAS, Native American Indian People stand neither for nor against nuclear energy - but for safety in all nuclear matters; and

WHEREAS, the error of omission today in nuclear safety may cause nuclear contamination to be brought to generations yet unborn; and

WHEREAS; the Federal Government began its nuclear enterprises in the atmosphere of secrecy and national defense during World War II; and

WHEREAS; the Federal Government conducted its nuclear testing and established its nuclear facilities on or near Native American Indian Ancestral Lands without consultation with those Sovereign Nations; and

WHEREAS, the Federal Government has continued to produce nuclear substances through the promotion of the " peaceful use of the atom" in nuclear powered electric plants; and

WHEREAS, there is great debate among reputable scientists on the issue of safety in nuclear matters - from health issues of cancer and genetic mutations to the lack of appropriate technologies available for storage of radioactive waste and clean-up of radioactive spills; and

WHEREAS, expert opinion agrees that the Columbia River System Beds are contaminated with PCBs and radioactive isotopes, and only the level of contamination is a matter of debate and that other rivers in the United States have experienced or are threatened with the same fate; and

WHEREAS, the law now recognizes that corporations have many of the civil rights of individual citizens, it should also be recognized that a river, a tree, a mountain, an animal, a plant have the right not to be contaminated by man's actions; and

WHEREAS, the proximity to urban populations of nuclear power plants is now seen to be an intolerable danger bringing the recommendation by the Kemeny Commission and others that they be moved to rural areas, thus threatening in a new way Native American Indian Ancestral Lands, Water, and Air; and

WHEREAS, it is our belief that in a democracy there is always the danger that the majority will fail under stress to adequately protect the interests of the minority; and

WHEREAS, the recent explosion of Mt. St. Helens in the State of Washington proved: that the Emergency Response Capabilities of even a nuclear "agreement state" leaves much to be desired; that prevailing wind patterns cannot be relied upon to accurately predict that neighboring populations are safe from radioactive fall-out simply by being located in what would normally be an up-wind position from a nuclear facility; that in three days the Mt. St. Helens fall-out banded the United States from west to east; that evacuation of affected populations facilely discussed in theory would, if required to be carried out in practice, prove the inadequacies of the theory; and

WHEREAS, the state, county and local governmental jurisdictions do not have money or expertise to train and equip teams to respond to any kind of nuclear incident; and

WHEREAS, prevention of nuclear accident is preferable to even a just compensation for nuclear accident, and at best just compensation is difficult to obtain as evidenced by the Atomic Veterans, the Agent Orange Vietnam Veterans, the People of Enewetak, the citizens of Utah, and the residents of Love Canal who are finding it difficult after the fact to gain responsive and accountable compensation from the Federal Government for their sorrows;

NOW THEREFORE BE IT RESOLVED → → →

NOW THEREFORE BE IT RESOLVED that neither the Federal Government, the State Government, nor their contractors have the right to unilaterally contaminate the Lands, Water, and Food Sources of the Native American Indians; and

BE IT FURTHER RESOLVED that Native American Indian Nations have a unique right to be present in the councils of decision concerning nuclear matters; and

BE IT FURTHER RESOLVED that Native American Indian Nations have the right to be made ready to protect themselves in case of unforeseen nuclear or chemical accident in their own areas.

DONE AND DATED on these days of 198

CONFEDERATED TRIBES AND BANDS
Yakima Indian Nation

POST OFFICE BOX 151
TOPPENISH, WASHINGTON 98948

September 22, 1981

Dr. Rajender Auluck
Director, Divison of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Auluck:

The Tribal Council of the Yakima Indian Nation asks that, before your office approves the WPPSS Environmental Impact Statement, WPPSS be required to consult concerning the content of that statement with the Yakima Indian Nation. We base this request upon the following facts:

1. The Yakima Tribal Reservation, one and one-half timesthe size of the State of Rhode Island, has a border only 13 miles from the Hanford Reservation, the site of the WPPSS plant.

2. The Yakimas are a Sovereign Nation with a Treaty with the Federal Government which guarantees to the Yakimas forever, particular securities, rights, and privileges in return for vast lands ceded to the Federal Government in 1855.

3. The Treaty also gives the Yakimas certain rights and privileges over Ceded Lands, part of which lie within the Hanford Reservation.

4. The religious and cultural beliefs and practices of the Yakimas, protected by the Treaty and Supreme Court decision, express a sacred, unique relationship with Nature and the Environment.

5. In spite of all the foregoing, none of the elected representatives of the Yakima People were ever consulted by the authors of the WPPSS Environmental Impact Statement.

6. A careful reading of the WPPSS Environmental Impact Statement reveals that:

   a. The only reference to Indian people in the document is a vague reference to "Wanapums", unidentified and as a general term of only historic interest, and even then in an insensitive way.

Dr. Rajender Auluck
Page Two
September 22, 1981

b. The document ignores the existence of the Yakima Indian Nation, its vaste adjacent Tribal Treaty Lands, and its particular concerns for the protection of its guranteed rights and privileges.

c. The document in its brief reference in the text to "Indians" is behind the times, and reveals no sensitivity to Indian Civil and Human Rights which today have become a matter of course in legislation and court decisions.

The Tribal Council asks, in addition, that your office consult with us before setting a time and place to begin discussions between the Yakima Indian Nation and the NRC licensing agent and the representatives of WPPSS. Please contact Mr. Russell Jim, Tribal Councilman, at (509) 865-5121. Thank you for your consideration.

Sincerely,

Watson Totus

Johnson Meninick, Chairman
Yakima Tribal Council

Concur:

Leonard Tomaskin

Leonard Tomaskin, Chairman
Yakima General Council

Message to the Environmentalists
# of Washington State
from the Yakima Indian Nation

There is a movement among environmentalists in Washington State to see as the best possible solution to the problems of nuclear and chemical contamination in Washington State, that:

- All nuclear and chemical waste activity be concentrated on the Hanford Reservation where accidents will threaten directly the least possible number of people.

The Yakima Indian Nation, which sees environmentalists as being, to date, a most valued ally in the fight for safety from nuclear and chemical contamination, believes environmentalists who espouse the reasoning above concerning the Hanford Reservation are doing the cause of safety for all Americans a great disservice.

Successful stands by environmentalists and other groups, including Indian groups, to remove the threat of contamination in the more populated areas of the State, have been helped along by the agreement of high population density, and the fact that the Hanford Reservation, already contaminated, and in an area of lower population density, was potentially available as a natural alternative. As the concept grows that Hanford is our answer to the vexing problem of safety from contamination, there appears to be growing at the same time, even among those who see protection of the environment as a top priority, a weary desire to be done with the problem by an escape reasoning, that:

- At least at Hanford an accident will affect the minimum possible number of people.

This position the Yakima Indian Nation is unwilling to accept as the best that can be done. The Yakimas know that evacuation is for them an empty phrase, and the borders of the Reservation are only 13 miles from the Hanford Reservation. These two hard facts do wonders to harden the Yakimas' determination to find a real safety from an irreversible accident.

In short, the Yakimas see a growing tendency, among those vocally "for safety in nuclear and chemical contamination", to:

1. Suffer a Failure of Nerve in the search for safety.
2. Accept the "inevitable" - that we can only hope to Cut our Losses, and harm the least number.

The Yakimas see both tendencies as backing off while pretending full support, as an escape from having to continue the search for a solution grounded on the premise that a catastrophe is unacceptable, and can, and must, be avoided at all cost.

The Yakimas urge all who are dedicated to the problem of our environment for generations yet unborn to consider the following:

1. That: Those non-Indians who live in the rural surroundings of the Hanford Reservation, and who remain silent, or even openly support the use of Hanford as a place for dangerous waste, do so, often, for reasons which may not be claimed as soundly supportive of "Hanford as the solution." It is obvious that none would choose to live near the danger center. They may often cover that fear with enforced ignorance, indifference, or a patriotic stance of duty to the country which allows at least a rational explanation for an irrational situation. The Yakimas believe local non-Indians who have these stands do so because:

   A. Evacuation is for them a meaningful concept.

   B. They have no group unity but see themselves as simply a minority of citizens outvoted by the majority in Western Washington.

   C. They do not have the Indian reverence of Nature as a sacred trust.

2. That: The concept of Cutting Losses is not a concept that has any logical place in the present stage of planning for safety from nuclear and chemical accident. That concept is admissible, and even necessary, only after the catastrophe. To allow that concept to play a role now, is a Failure of Nerve, and an assurance that to end the discussions is more important than to devise the safest solution. To use a medical analogy: A doctor does not apply the concept of triage when trying to avoid accidents, only after the accident occurs and he is faced with more needs than he can answer.

3. That: To support the moving of nuclear and chemical waste sites away from populated areas may seem at first sight, wise. On consideration however, it is apparent that such actions remove the urgency to find a safe solution for all citizens from the urgent attention of the majority of voters, who see themselves, and the State, as already finished with a sticky problem, in which a failure can mean catastrophe - but now only for someone else.

4. That: Indian People and non-Indian lovers of the environment have traditionally been partners in the protection of Nature. It would be sad indeed if environmentalists of Washington State found themselves on a different side in these monumental matters, from the Yakimas and other Indian People whose Ancestral Lands surround the Hanford Reservation.

In conclusion, the acceptance of the Hanford Reservation as the solution to the problem of nuclear and chemical waste disposal:

1. Cuts short the search for other solutions.
2. Lowers the safety target, since Hanford is already contaminated and isolated from large urban areas.
3. Divides the forces pressing for safety.
4. Removes the salutary pressure on the majority of voters which is a stimulus for the finding of other solutions.
5. Robs some citizens of equal protection of life and property.
6. Violates the sanctity of sacred agreements with Indian People.

Senator **Simpson**. Thank you very much. That is very helpful, Mr. Jim, as all of your testimony is to us on this full Committee of Energy and Natural Resources and on the Subcommittee of Nuclear Regulation. We appreciate that.

I have several questions and then we will go to Senator Johnston and then to Senator Domenici for questions.

I would just like to ask all of you, what are your views on the procedures provided in the bill which would expedite the approval of utility proposals to expand the APT reactor spent fuels storage capacity, and if you could share with us other provisions or changes to those provisions that you would recommend regarding the expanding of APT reactor spent fuel storage capacity.

Mr. **Brown**. The nuclear power subcommittee has not yet had an opportunity to review these particular provisions in detail.

Similar issues occurred earlier in the year when there were discussions about the licensing of powerplants. Generally States felt that an acceptable compromise was reached in the Senate provision that provided protections, so I think the response of the States is generally favorable, but I would want to consult with the full membership of the committee before giving the final response on that.

We will be meeting within the next 2 weeks.

Senator **Simpson**. Thank you. Mr. Jim, we will come to you next.

Mr. **Jim**. OK. I am afraid I do not have a direct answer for you, sir. We do not have, as an Indian tribe, the technical assistance to review what you have—the question that you have, and I certainly would ask for assistance from our legal staff, if they have an answer.

Senator **Simpson**. Fine. When you gain that, share it with us.

Mr. **Helminski**. I don't have the benefit of going back to my State planning council since it is not in existence. The State planning council recommended in their policy that recommendations on spent fuel that reasonable time targets be published and that a decisionmaking schedule be included in legislation with regard to facilitating—I use the word facilitating rather than expediting—facilitating permits for increased spent fuel capacity.

The council also recommended that the States take appropriate actions to work with utilities to facilitate the development of spent storage capacity. And the council took those positions because they took a prominent position that it should be the industry that should provide onsite storage capacity as opposed to a Federal AFR in the criteria, which I would have to say that the council initiatives were put forth were that public participation, State and local government involvement, would not be precluded by the setting of timetables that were just too quick and not conducted in a fashion that would allow State or public input, but in the general principles, the State planning council is on record for setting timetables for allowing the licensing of increased storage capacity.

Senator SIMPSON. Let me ask you, the three of you, what are your views on the policy established under S. 1662 on the disposal of high-level radioactive waste and spent fuel in a repository? Do you agree that all high-level waste must ultimately be disposed of in a repository?

Mr. BROWN. Existing NGA policy recommends that as a primary goal of the waste management program. We have not commented in detail on particular aspects of waste disposal, but have established as a primary goal of the program the permanent disposal in a mined geological repository.

I think that our overall response to the bill would be that should remain the primary goal of the program and it should not be sidetracked on some of the other alternatives that have been brought up.

That has been NGA policy for the last 5 years.

Senator SIMPSON. Mr. Jim?

Mr. JIM. Mr. Chairman, many tribes thought the United States, as the Yakimas feel, feel that there should be a solution for the clarifying of these deposits. Naturally I am very familiar with the study going on in the Hanford area and of the salt formations for possible storage of highly radioactive waste, but until they come up with a good sound program, I am afraid the Yakima nation would like to take a firm hand as to what is going on.

This feeling as the Camanee Commission put it, get it out of your ban areas, which creates a new minority, this feeling of triage, 10,000 versus 100,000, which puts the Yakimas nation and probably other tribes into another minority basis.

Many of these technical questions will have to be looked at when we do get the technical assistance, if and when.

Senator SIMPSON. Mr. Helminski.

Mr. HELMINSKI. The State planning council plainly stated that Federal legislation emphasized permanent disposal rather than temporary or long-term storage. In discussing those issues, one of the problems that came up, if you don't go to permanent geological repository programs immediately, it is not going to get any easier, it is going to get a lot harder, and the technology of geological disposal really meant there is no way you can get out of selecting a State to put the waste in even if it is on Federal land, because that Federal land still lies within a State, so you don't ease any problems by doing that.

Senator SIMPSON. Let me ask another question and then I will defer to Senator Johnston and see if he has questions and then to

Senator Domenici. One of the reasons in the legislation, S. 1662, of course, is the mandatory nature site survey program.

Would you agree that there is a need for geographical distribution of nuclear waste repositories, particularly if the first repository might be cited in the West? Do you support the proposition, then, that no State with potential repository sites should be able to refuse to participate in such a program?

Mr. **Brown**. I didn't. That is NGA policy. We stated at the outset that with both low- and high-level waste that the responsibility resides with all the States.

Similarly, the solution should involve all States. We recommended last year that the low-level waste problem be assumed by the States, and that became Federal policy last December, and the States are acting and pursuing that at this point.

The responsibilities on high-level waste technically reside much more with the Federal Government, but in terms of the political responsibility, we endorse the concept that all States bear a national responsibility for solving high-level waste problems.

Mr. **Jim**. Yes, sir. We agree that all States should be responsible, but the tribes are asking for their input also so that there is a certain responsibility to the Indian tribes from the Federal Government.

Mr. **Helminski**. The Council's proposals rejected either an arbitrary action by the Federal Government or State arbitrary actions of veto to bloc waste management activities. As far as regional location, the requirement of the council was that there be a process of consultation and concurrence and I personally think that a regional distribution of sites makes sense given transportation routes and safety related transportation.

Senator **Simpson**. In your testimony you recommended that NRC be given concurrence in the DOE decision to accept spent fuel from a utility for interim storage in the Federal AFR.

Would you also recommend, of course, that NRC's concurrence there be based on health and safety considerations?

Could not that provide a denial of access to the Federal AFR for a utility that could not maintain a full corps reserve capability, with a consequent, perhaps, even a shutting down of that particular facility? I ask you that.

Mr. **Helminski**. I would think that a criteria for acceptance—in developing a criteria you would look at the ability of that utility in all aspects, the socioeconomic aspects, environment aspects, safety aspects, technical and engineering aspects of being able to establish that capacity, but NRC can use those criteria to make a determination on whether that utility can accept it.

What I was getting at was that there are utilities and there are places in the country that would not allow a utility to expand its storage capacity because it is purely a political issue. It just doesn't want it to happen, and it could be an election year, and it is a good issue to get public support for not allowing a plant to expand its capacity and bring it to a crisis point in order to stir up the public and I do not believe the decisions on increasing storage capacity should be brought into that realm and I think without defining what criteria could be, a utility could go to the Secretary and say we cannot do it, and the Secretary asks why, he says the PEC won't give us permission to do that, and when you get beyond that there is no technological reason why it can't be done.

Senator SIMPSON. I would look forward to further information you can furnish there. That DOE determination is really on the question of storage capacity rather than the health and safety issue.

Senator Johnston?

Senator JOHNSTON. Thank you, Mr. Chairman.

Mr. Helminski, I am interested in the position of your group that says that you are for a national policy for a permanent disposal of all high-level and transuranic waste.

Had you defined permanent?

Mr. HELMINSKI. Nonretrievable.

Senator JOHNSTON. Nonretrievable.

Mr. HELMINSKI. Yes.

Senator JOHNSTON. So that you want to put it away where no one can get it, whether to reprocess or whether to check the safety of the cask or whatever?

Mr. HELMINSKI. Permanent is defined as nonretrievable storage in a safe, permanent geological site. That was the context in which the planning council developed its recommendation.

Senator JOHNSTON. What does geologic mean in that context?

Mr. HELMINSKI. In the ground.

Senator JOHNSTON. If you put it 6 feet under, would that be geologic?

Mr. HELMINSKI. The planning council was made up of State officials. They did not define what geological disposal was or how far in the ground it would be. The requirement was that it would be benign, and whatever benign characteristics that would mean in order to insure over a permanent period of time, and that was always talked about whether it meant 100 or 150 years.

Let's say it was beyond institutional capability of seting up a process to monitor it over a long period of time.

Senator JOHNSTON. Is retrievability in your mind associated with safety?

Mr. HELMINSKI. No, not in my mind.

Senator JOHNSTON. Why would retrievability, therefore, be an important consideration if your consideration is safety? Is it simply in the public mind that you think the public would think if it is retrievable it is, therefore, less safe?

Mr. HELMINSKI. I think there is some of that and I think that was present in a lot of council's discussions that we did not have a way to dispose of the waste permanently. You could not go from one facility to another to another.

You would always have to build another one and if you could integrate the waste back into the geological formations from which it came, the elements, that would be a safe way of disposing of it.

Again, I hasten to add, these were politicians that were developing proposals and not technologists or scientists, and they relied on the scientific information. They perceived the inability to get the permanent disposal, and that the public would view that as a problem with nuclear power, per se.

No permanent solution, therefore, why are we going on with nuclear power development. We are going to have to go from one interim storage facility to another to another for generations to come.

Senator JOHNSTON. What you are telling me are two things, first of all, that your definitions are not precise in a technical sort of way, they are political sort of definitions which accomodate the political realities which are in this matter most important, but nevertheless, they are political definitions as opposed to technical definitions and they deal with public perceptions as opposed to safety?

Mr. HELMINSKI. To some degree you are correct, Senator, but they always dealt with eliminating other technical options that given the information and the knowledge of the council members was not feasible.

For example, launching the waste into space. So in a sense, the council members adopted these geological repositories as the best technical, safe way to get rid of waste in a permanent way based on the information they had.

Senator JOHNSTON. And by geologic, they mean in the ground as opposed to the mausoleum type or shooting into space or putting it in the ocean?

Mr. HELMINSKI. I would have to say in the council's deliberations above the surface storage did not come up in any real discussions other than when it was associated with a retrievalbe facility.

Since that was not permanent, that did not come up as permanent on site surface storage.

Senator JOHNSTON. There are two ways or a number of ways to look at the word permanent in getting at this political definition.

I could define permanent as meaning permanent as opposed to interim; that is, you put it someplace where it can stay until it is no longer dangerous or beyond institutional timeframes.

That is one definition.

Another might be nonretrievable. Now, are you telling me that they did adopt a concept of retrievability as opposed to permanency or rather the interim nature as opposed to permanency?

Do you understand what I mean?

Mr. HELMINSKI. Let me see if I understand. They adopted permanency to mean nonretrievability at the time they discused it and adopted it. As far as I can, you know, go back into their minds over the year, I was with them six months, but that is, I believe, what the principle was, permanent meaning irretrievable, meaning that a solution to the problem was there, because the council did not look at interim facilities as a solution to the waste problem, it is just putting it off.

Senator JOHNSTON. Well, interim and retrievability are two different concepts.

Mr. HELMINSKI. Yes.

Senator JOHNSTON. If we created a noninterim permanent facility in the sense it is not interim, it can stay there as long as we want it to, but you can nonetheless, like Lee Harvey Oswald, retrieve it——

Mr. HELMINSKI. That question came up peripherally. The members mentioned it can always be mined so to some extent it is retrievable. That would not be disallowed. A permanent repository that allowed retrievability could not be disallowed from the council's recommendations.

Senator JOHNSTON. That is the important point. The fact that we added otherwise permanent, the fact that we can come along and retrieve it, wouldn't necessarily interfere with that definition?

Mr. HELMINSKI. It would not in some members' minds. In others, it would, because it was a very hazy point, as permanent became a very hazy point.

Senator JOHNSTON. Has your group really looked at the safety question or more at the public perception question?

Mr. HELMINSKI. Our charge was to look at the intergovernmental decisionmaking process in that we looked at achieving a sound one would lead to public acceptability. We did not look into the technical aspects of the program.

Senator JOHNSTON. Permanent is also, I would think, would not exclude the ability to monitor, particularly insofar as monitoring makes it certainly more safe?

Mr. HELMINSKI. Yes.

Senator JOHNSTON. If you were to provide for a facility which would be there as long as the toxicity, radioactivity and waste heat were no higher than the—than those qualities of natural uranium, would that be permanent?

Mr. HELMINSKI. In the council's life, I could not answer that. They did not get into discussing those technical details. The definition I have given you before and which they operated under was nonretrievable, and the implication that meant to the public and a permanent solution.

Senator JOHNSTON. The reason I am asking this question, we passed legislation which had the term long-term use and permanent, was also used, both of which I think are a mistake, because those terms really don't mean anything until they are very precisely defined, but I think in my mind at least the safest facility is one that is a man-made facility that is underground, that is capable of being monitored. You can have a sort of benign sort of monitoring where you have a double protection of not only the Earth but the rock or whatever it is that it is put in, but you have the cask itself, which can be double walled and filled with argon gas with sensors which would sense any break at all in the cask which would make it more safe.

I think we can design that kind of facility which would be as permanent as you need for it to be, that is, enough years out so that the scientists can tell us by the time that anything happens that it is beyond the ability of man to know or of human institutions to exist, that its activity would decay down below or equal to that of natural uranium and if we could do that, wouldn't you think that would satisfy your definition?

Mr. HELMINSKI. Let me answer that in the following way. One of the problems with elected officials looking at engineering concepts and engineering designs and saying that it will work is, it is a one-shot effort.

Safety, environmental concerns, and its environmental benigness has to be predicted on paper. There are not two of these.

So we are relying on man's ingenuity which in the past has failed and it has failed at times in the design of nuclear powerplants where we have had massive nuclear regulations and massive design specifications.

In light of that, the State council planning members were relying on nature to assure public health and safety as it has in the past and has for centuries, so that is—that is the only answer I can give. I can't—the time that we have to assure nuclear waste from being—well, the time we have available—we must make sure benign is a long time, and where will we all be.

How many governments will produce and how many generations down the road before it is benign enough not to allow an earthquake to upset it or allow a plane to crash into it, and nature was relied on in a sense by the council in providing a permanency of solution.

Senator JOHNSTON. I agree with you, but nature is not always stable and certainly man's understanding of nature is neither stable, predictable nor consistently applied. And therein lies the big problem. If we could get all the scientists to agree on what were the qualities of nature 1,000 years from now, we would have no problem at all.

Mr. HELMINSKI. I agree.

Senator JOHNSTON. The problem is that the scientists do not agree and laymen do not agree either.

Mr. HELMINSKI. I agree.

Senator JOHNSTON. Thank you very much.

Senator SIMPSON. Thank you.

Senator Domenici?

Senator DOMENICI. Thank you very much, Mr. Chairman.

Let me first say to the committee that I am very pleased with the way we are handling this, and the fact that the two committees are working together. I think it bodes well for us coming up with something that is workable. I am also aware that we have a number of technical issues to decide.

In the area of the institutional problems and the political problems between our tribal governments, States and the National Government, which all three of you have worked in and at, I believe this legislation is the best effort we have had for putting down a workable resolution in the area of a national nuclear waste policy.

I can recall in both committees, since I serve on both of them, trying to explain what consultation and concurrence mean without people immediately saying that is veto. Since concurrence became such a bad word, I would like to make a part of the record the consultation and cooperation agreement entered into by the Department of Energy and New Mexico.

It is completed and it is signed. It provides a mechanism for arbitrating factual disputes. Both parties have agreed to an arbitration mechanism and it provides that no judicial remedies that exist at law are negated by the agreement.

I think that since concurrence and consultation is a concept, we frequently don't understand how you can enter into that kind of agreement in advance and yet prescribe for future resolutions in an orderly manner, which happens to be the concurrence part of it, I would ask that the agreement for the committee and the staff be made a part of the record.

Senator SIMPSON. Without objection, it is so ordered.

[The agreement follows:]

Department of Energy
Washington, D.C. 20585

JUN 15 1981

Honorable Pete V. Domenici
United States Senate
Washington, DC 20510

Dear Senator Domenici:

In accordance with Public Law 96-164, enclosed is a copy of the Consultation and Cooperation Agreement signed by Governor Bruce King of New Mexico and Secretary of Energy James B. Edwards. This agreement provides the framework for the Department of Energy and the State of New Mexico to consult and cooperate in a meaningful way on the health and safety aspects of the Waste Isolation Pilot Plant (WIPP) project. It also defines roles and responsibilities, provides for State input into the decisionmaking process, and formalizes the conflict resolution process.

Also enclosed with the Consultation and Cooperation Agreement is the stipulated agreement which stays proceedings on the New Mexico Attorney General's lawsuit on the WIPP project. This settlement will enable the WIPP project to proceed with the full cooperation of State officials.

As a result of the agreements between the State of New Mexico and the Department of Energy, the WIPP project is indeed proceeding as planned. Drilling of the 12-foot diameter exploratory shaft has started and at last report was 316 feet into the ground. We expect this progress to continue.

If you require any additional information, please let us know.

Sincerely,

Original Signed By
Herman E. Roser

Herman E. Roser
Assistant Secretary
for Defense Programs

Enclosure

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF NEW MEXICO

STATE OF NEW MEXICO, ex rel.
JEFF BINGAMAN, Attorney General
of the State of New Mexico,

Plaintiff,

v.

THE UNITED STATES DEPARTMENT
OF ENERGY, et al.,

Defendants.

CIVIL ACTION NO.
81-0363

COPY

FILED
UNITED STATES DISTRICT COURT
ALBUQUERQUE, NEW MEXICO
JUL 01 1981

JOINT MOTION TO STAY ALL PROCEEDINGS

Come now Plaintiff and Defendants and move this Honorable Court for an Order granting a stay of all proceedings in this action in accordance with their Stipulated Agreement.

In Support of this Motion the parties state as follows:

1. That they have entered into the attached Stipulated Agreement dated July 1/1981, according to which they have agreed to abide by the provisions therein in lieu of going forward with this litigation at the present time.

2. That the Stipulated Agreement makes any further proceedings before this Court prior to February 1, 1982 unnecessary; and,

3. That the parties will advise the Court on February 1, 1982, on the status of the case.

Dated: July 1/1981, 1981.

Respectfully submitted,

JOSEPH CAMPA
Deputy Attorney General

JEFF BINGAMAN
Attorney General
State of New Mexico

OF COUNSEL:

GAYLE MANGES
Field Solicitor
Department of the Interior
Santa Fe, New Mexico 87501

JOHN F. McNETT
Assistant Chief Counsel
Department of Energy
Albuquerque Operations Office
Albuquerque, New Mexico 87103

RAYMOND HAMILTON
Assistant U.S. Attorney

R.E. THOMPSON
United States Attorney

ANDREW F. WALCH
PATRICIA J. BENEKE
Attorneys, Department of Justice
Land and Natural Resources Division
Benjamin Franklin Station
P.O. Box 7415
Washington, D.C.

COPY

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF NEW MEXICO

FILED
UNITED STATES DISTRICT COURT
ALBUQUERQUE, NEW MEXICO

JUL 01 1981

STATE OF NEW MEXICO, ex rel.
JEFF BINGAMAN, Attorney General
of the State of New Mexico,

Plaintiff,

vs.

THE UNITED STATES DEPARTMENT
OF ENERGY, et al.,

Defendants.

CIVIL ACTION NO.
81-0363 JB

ORDER

Upon consideration of the Joint Motion To Stay All Proceedings filed this day with the Court;

And, considering the Stipulated Agreement dated July 1, 1981, to which the parties hereto have agreed, it is on this 1st day of July, 1981:

ORDERED that these proceedings are stayed until February 1, 1982, in accordance with the agreement of the parties as stated in their Stipulated Agreement; and the parties shall in good faith comply with the provisions of the Stipulated Agreement, and further, that the parties advise this Court on that date on the status of the case.

JUAN G. BURCIAGA

UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

STATE OF NEW MEXICO, ex rel.
JEFF BINGAMAN, Attorney General
of the State of New Mexico,

Plaintiff,

v.

THE UNITED STATES DEPARTMENT
OF ENERGY, et al.,

Defendants.

CIVIL ACTION NO.
81-0363 JB

FILED
UNITED STATES DISTRICT COURT
ALBUQUERQUE, NEW MEXICO

JUL 01 1981

STIPULATED AGREEMENT

Whereas, the plaintiff, State of New Mexico, ex rel. Jeff Bingaman, Attorney General, has brought this action to address four major concerns of the State of New Mexico; and,

Whereas, these concerns include: (1) that the final decision point for commencing construction of a permanent WIPP repository and its operation should not be reached until all interested parties including the State of New Mexico know the results of actual site and design validation tests and the SPDV program in general; and (2) that the State of New Mexico be given the opportunity to have a final resolution of all essential and integral off-site state government concerns involving health, safety, and public welfare issues prior to a final decision to commence construction of permanent WIPP facilities; and (3) that the State of New Mexico be entitled to a binding and enforceable consultation and cooperation agreement that does not waive any right by the State to judicial review of any federal agency action with respect to the WIPP project; and (4) the concern that the withdrawal provisions of the Federal Land Policy and Management Act be complied with, including public hearings to be held before a decision is made to withdraw federal lands from the public domain for the WIPP project; and

Whereas, defendants do not acknowledge the validity of any of plaintiffs' claims nor admit that any of defendants' actions to date in carrying out the WIPP program have been in violation of the United States Constitution or any law or regulation of the United States or the State of New Mexico; and

Whereas, the scheduled, phased construction of the WIPP project, subject to Congressional approval, entails the excavation of the SPDV portion of the project and the completion, or substantial completion, of site and design validation tests prior to the commencement of the construction of, and excavation for, the permanent WIPP project; and

Whereas, under the present schedule between September of 1983 and the fall of 1988 construction will continue and further excavation of the waste experimental rooms are to be completed as well as the completion, or substantial completion, of the simulated waste experiments; and

Whereas, plaintiff and defendants waive no rights hereby to litigate any issues which they will attempt to dispose of by negotiation between now and the trial on the merits should those negotiations fail to achieve the desired results; and

Whereas, the parties agree to carry out in good faith the mandatory terms of this Stipulated Agreement as fully set out in this document.

NOW, THEREFORE, the parties hereby stipulate and agree as follows:

1. Simultaneous with the entry of this Stipulated Agreement, the United States Department of Energy and the State of New Mexico shall execute a consultation and cooperation agreement which shall provide for the timely exchange of information about the WIPP project and procedures for them to follow to attempt to resolve conflicts between them relating to the public health, safety or welfare of the citizens of the State should any such conflicts arise during

the course of that project. This consultation and cooperation agreement shall be a binding, enforceable agreement between the Department of Energy and the State of New Mexico and shall expressly provide that it does not constitute a waiver by the State of any right it may have to judicial review of federal agency actions with respect to the WIPP project. The consultation and cooperation agreement is attached to and incorporated herein as Appendix A hereto. The provisions and mandates of this Stipulated Agreement are in addition to the provisions and obligations of that consultation and cooperation agreement and to the extent that they are inconsistent, if at all, this Stipulated Agreement controls.

2. The United States Department of Energy shall prepare and provide to the State of New Mexico and the public a formal, public document containing a summation of the results of all experiments and studies conducted during the SPDV phase and site validation phase of the WIPP project at least sixty (60) days prior to any decision as to whether the information obtained from the SPDV program and site and design validation tests warrants the commencement of construction of the permanent facility for the full WIPP repository which decision is now estimated to be no earlier than September of 1983. Within such 60-day period the State of New Mexico and interested members of the public shall have an opportunity to comment on that document as it relates to the decision to commence construction of the permanent facility for the full WIPP project. After receiving, reviewing, considering and responding to any comments made by the State and interested members of the public, the Department of Energy shall enter a final decision on whether the information obtained from the SPDV program and site and design validation tests warrants the commencement of permanent facility construction for the WIPP project. The State of New Mexico is not barred from seeking or obtaining judicial review of that decision by

this Stipulated Agreement. Permanent facility construction shall be deemed to commence for purposes of this paragraph with excavation of the third shaft.

3. The Department of Energy shall prepare the comprehensive topical reports and conduct the site and design validation experiments and other preliminary experiments and studies set forth and attached hereto as Appendix B of this Stipulated Agreement and shall provide the State and the public with final or interim reports on the results of those experiments prior to the 60-day review period ordered in paragraph 2 above.

4. To the extent that additional funding becomes available, the Department of Energy shall also conduct the studies and experiments set forth and attached hereto as Appendix C of this Stipulated Agreement and provide the State and the public with final or interim reports on the results of those experiments and studies prior to the 60-day review period mentioned in paragraph 2 above. The Department of Energy shall make a good faith effort to arrange for such funding prior to February 1, 1982. The Department of Energy shall prepare and provide to the State of New Mexico by September 1, 1981, a report assessing the merits and costs of their experiments and studies set forth in Appendix C. Inability of DOE to arrange for funding for the studies listed in Appendix C will not preclude the State from raising the need for such studies as an issue in any trial on the merits.

5. The Department of Energy will prepare and provide to the State of New Mexico a formal, public document containing a summation of the results of all final or interim experiments and studies related to (1) the examination of the so called "disturbed zone or zone of anamolous seismic reflection data" the southern boundary of which lies in an East-West direction bisecting Sections 16 and 17 in Township

22S, Range 31E, N.M.P.M., in Zone 3 of WIPP site, starting approximately 1-1/2 miles north of ERDA #9, and (2) all simulated wasted experiments, prior to the transportation of any waste into the State of New Mexico for emplacement at the WIPP site. The Department of Energy shall afford the State of New Mexico and interested members of the public a 45-day review and comment period and shall consider and respond to such comments prior to the decision to transport any waste into the State for emplacement at the WIPP site. This Stipulated Agreement shall not bar the State of New Mexico from seeking or obtaining judicial review of any Department of Energy actions and final decisions in that respect.

6. If not required by federal laws or regulations existing at the time, the Department of Energy shall, nevertheless, provide to the State of New Mexico and the public, a reasonable review period prior to any decision to change the nature or scope of the WIPP project to that of a permanent, high level waste repository, or a decision not to retrieve the high level waste placed in the repository on a temporary basis which high level waste the Department of Energy intends to remove at the conclusion of the experimental period of approximately thirty (30) years in duration.

7. The defendant, DOE, shall make a good faith effort to assist the State of New Mexico in resolving the State's off-site state governmental concerns. In order to carry out its obligations under this paragraph, the defendant, DOE, shall prior to February 1, 1982, seek to establish and participate in a State-Federal task force comprised of all federal governmental agencies with jurisdiction over or responsibility for activities related to WIPP and shall join with the State, where appropriate, in seeking and recommending federal or Congressional resolution of the following State concerns related to the WIPP project:

(a) the question of state liability arising from accidents;

(b) funding for necessary road upgrading;

(c) funding and training for ongoing emergency preparedness and emergency response;

(d) monitoring of transportation of waste through the State;

(e) funding for, and assistance in, conducting baseline health studies of inhabitants in neighboring communities near the WIPP site and reasonable periodic monitoring thereafter;

(f) funding for, and assistance in, post-operation monitoring of the WIPP site.

In the event that the State of New Mexico is not satisfied by February 1, 1982 (or a mutually agreed upon date thereafter), that such concerns will be resolved prior to the completion of the SPDV phase of the WIPP project and any decision to authorize the commencement of permanent facility construction for the WIPP project, the State of New Mexico may raise those issues in any trial on the merits.

8. The SPDV phase of the WIPP project currently underway shall not exceed, before the decision as to whether the information obtained from the SPDV program and site and design validation tests warrants the commencement of construction of the full permanent WIPP repository, the excavation of approximately 115,000 tons of salt and four acres of excavated areas as set forth in the Department of Energy's TME 3063 document on SPDV published in October of 1980.

9. The defendants, Bureau of Land Management and Department of Interior, shall, in accordance with DOI withdrawal regulations, conduct public hearings on July 14 and 15 of this year on DOE's pending withdrawal application relating to the proposed public land site for the WIPP project. That application, notice of which was published in

45 Fed. Reg. 75768-69 (November 17, 1980) seeks to reserve the land for the exclusive use of DOE for the purpose of protecting the geological integrity of the site for the research and development of a WIPP project and performing SPDV.

10. This Stipulated Agreement does not affect the validity of the Record of Decision entered by the Department of Energy for the WIPP project on January 22, 1981, nor does it obligate DOE to undertake any additional steps in the NEPA process with respect to the WIPP project beyond that required by law. Notwithstanding such Record of Decision, the Department of Energy shall comply with all of the terms and conditions contained in the provisions of this Stipulated Agreement.

11. The Department of Energy shall cooperate with County Commissions of Lea and Eddy Counties to permit the Counties to provide optimum road access to the WIPP site from population centers of both counties.

12. The application of plaintiff, State of New Mexico, for preliminary injunction is withdrawn by the plaintiff without prejudice to any of the claims in its Complaint.

13. By entering into this Stipulated Agreement, defendants do not waive any defenses they may have to this action.

14. All proceedings in this action should be stayed until February 1, 1982, at which time the parties agree to report to the Court on the status of the case. Any such subsequent trial on the merits shall be limited to the issues of State concern addressed in paragraphs 4, 7, and 9 of this Stipulated Agreement.

Signature:

For the Plaintiff State of
New Mexico

Jeff Bingaman
JEFF BINGAMAN
Attorney General

Signature:

For the Defendants

R.E. THOMPSON
United States Attorney

Myles E. Flint
MYLES FLINT
U.S. Department of Justice
Washington, D.C. 20530
Attorney for Defendants

APPROVED:

R. Tenney Johnson
For Defendant Department of Energy

William H. Coldiron
For Defendant Department of the Interior

Appendix A

AGREEMENT FOR CONSULTATION AND COOPERATION

This Agreement is entered into effective as hereinafter provided by and between the State of New Mexico (hereinafter referred to as the "State") and the United States Department of Energy (hereinafter referred to as "DOE").

WHEREAS, DOE is proceeding with plans for the Waste Isolation Pilot Plant project (hereinafter referred to as "WIPP") in New Mexico, as more fully described below;

WHEREAS, the parties recognize: (1) the United States Government's responsibility for national security; (2) DOE's responsibility for environmental aspects in developing procedures, systems and facilities for safe disposal of radioactive wastes arising from past and future conduct of the Nation's defense programs; and (3) the State's responsibility for the welfare of its citizens including, but not limited to, public health and safety, environmental and socioeconomic aspects of the transportation, handling, storage and disposal of radioactive wastes in New Mexico;

WHEREAS, the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, P. L. 96-164, attached as Appendix A, provides only with respect to WIPP that the Secretary of DOE shall enter into a written agreement with the appropriate State officials providing for consultation and cooperation with regard to the public health and safety aspects of the project;

WHEREAS, under P. L. 96-164 the State has the right to comment on and make recommendations with regard to the public health and safety aspects of WIPP;

WHEREAS, the Secretary shall receive, consider, resolve and act upon the comments and recommendations made by the State within time frames specified in Article IX of this Agreement; and

WHEREAS, the Agreement has been reached in accordance with P. L. 96-164.

NOW, THEREFORE, the parties agree as follows:

ARTICLE I - PURPOSE AND INTENT

A. This Agreement affirms the intent of the Secretary to consult and cooperate with the appropriate officials of the State with respect to the public health and safety concerns of the State, and to give consideration to such concerns and cooperate with such officials in resolving such concerns consistent with P.L. 96-164. It also affirms the intent of the Governor of the State to express such concerns in a timely manner and to make all reasonable efforts to cooperate with DOE in resolving such concerns.

B. It is recognized that WIPP was an ongoing project at the time the parties commenced their negotiations of this Agreement. In the event the WIPP mission as described in Article VI of this Agreement is substantially changed, whether by amendment to P.L. 96-164 or otherwise, the parties may mutually agree to no longer be bound by this Agreement or provisions of it and the parties shall not be bound to comply with certain provisions of the Agreement if such changes in the WIPP mission make a particular provision impossible to perform or enforce. Any such agreement shall be reflected in a modification to this Agreement.

C. The purpose of this Agreement, in carrying out the intent expressed in Paragraph A of this Article, is to designate Key Events; set time frames for review, comment and resolution of comments; and establish procedures for review of WIPP and for resolving conflicts.

ARTICLE II - DEFINITIONS

For purposes of this Agreement:

A. The term "State" means the sovereign State of New Mexico, as represented by the Governor of the State of New Mexico or his duly authorized representative;

B. The term "DOE" means the United States Department of Energy as represented by the Secretary or his duly authorized representative;

C. The term "Secretary" means the Secretary of the United States Department of Energy, or anyone serving in that capacity, or any duly authorized representative of the Secretary;

D. The term "public health and safety" means the potential impact upon the citizens of New Mexico resulting from activity attendant to WIPP, and includes any environmental effects which can impact the health and safety of New Mexico citizens;

E. The term "defense waste" means radioactive wastes resulting from defense activities and defense programs of the United States Government exempted from regulation by the United States Nuclear Regulatory Commission. The term excludes any radioactive waste generated by the commercial nuclear power industry;

F. The term "transuranic waste" or "TRU waste" means defense waste, other than high level waste or spent reactor fuel, containing alpha emitting transuranic elements (including Uranium-223), with radioactive half lives greater than one year, in excess of 10 nanocuries per gram of waste;

G. The term "high level waste" means defense waste, in the form of the solidified product of the first-cycle solvent extraction or similar process by means of which uranium and plutonium are recovered from irradiated reactor fuel;

H. The term "Key Event" means a significant activity in the development, design, construction, operation and decontamination and decommissioning of WIPP;

I. The term "Milestone" means an action which shall be achieved prior to the commencement by DOE of a Key Event; however, it is recognized that there may be revisions to Milestone documentation after commencement of the Key Event involved; and

J. The term "Working Agreement" means the document, incorporated herein by reference as Appendix B, which elaborates on the details of this Agreement and shall be further developed pursuant to this Agreement.

ARTICLE III - EFFECTIVE DATE

As required by P. L. 96-164, this Agreement shall become effective upon the elapse of forty-five days while Congress is in session unless the Committees on Armed Services of the Senate and House of Representatives, in writing, waive any portion of such forty-five days; the forty-five days to commence running upon submission of this Agreement as signed by the parties to the Committees. DOE shall advise the State in writing as to the date on which the foregoing requirement has been fulfilled and such date shall be deemed to be the effective date of this Agreement.

ARTICLE IV - POINTS OF CONTACT

A. The Chairman, Radioactive Waste Consultation Task Force, State of New Mexico, or such other person as designated by the Governor, is the principal representative of the State for maintaining liaison with DOE and for the consultation and cooperation process.

B. The Manager, Albuquerque Operations Office, DOE (Manager, ALO), or anyone serving in that capacity, is designated by the Secretary as the principal representative of DOE for maintaining liaison with the State and for the consultation and cooperation process.

C. The principal representatives may designate appropriate individuals or groups to conduct day-to-day activities for them.

ARTICLE V - MODIFICATIONS

A. The parties to this Agreement recognize that future developments, including but not limited to changes in applicable law, including but not necessarily limited to P. L. 96-164, may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions contained herein upon written notice to the other party, setting forth the modification or modifications requested together with the reasons therefor. The other party agrees to consider the requested modification or modifications, to respond to the request in writing and to enter into negotiations in good faith within 30 days of receipt of the request.

B. Pursuant to P. L. 96-164, the Secretary shall notify the Committees on Armed Services of the Senate and the House of Representatives of modifications to this Agreement.

ARTICLE VI - WIPP MISSION

A. P. L. 96-164 authorized WIPP as a defense activity of DOE for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from defense activities and defense programs of the U. S. Government exempted from regulation by the United States Nuclear Regulatory Commission.

B. WIPP is intended to include receipt, handling and permanent disposal of transuranic waste and temporary storage for experimental purposes of a limited amount of high level waste. The amount of radioactivity shall be as set forth in the Safety Analysis Report referenced in the Working Agreement under Article III. All radioactive material used in high level waste experiments shall be removed from the WIPP site on completion of the experiments and prior to decontamination and decommissioning. Transuranic wastes shall be subject to a period of retrievability prior to permanent disposal as set forth in the Retrievability Plan referenced in Article IV of the Working Agreement.

C. DOE or its successor governmental agency shall not abandon the WIPP site without decontamination and decommissioning having been completed. As stated in the Working Agreement, the Milestones and associated consultation and cooperation process provisions covering the decontamination and decommissioning of WIPP shall be negotiated by the parties in the future.

ARTICLE VII - KEY EVENTS AND MILESTONES

A. DOE shall consult and cooperate with the State as the project progresses through Key Events and Milestones identified in Paragraph C of this Article and in the Working Agreement. Such consultation and cooperation shall be on a regular, ongoing basis to facilitate an orderly process of State review and evaluation. It is recognized that neither the Key Events nor the Milestones so identified are necessarily sequential, particularly since some Key Events and Milestones may properly be carried on simultaneously under this Agreement.

B. DOE shall give prior written notice to the State of its intention to commence Key Events identified in Paragraph C of this Article.

C. The following are currently identified as Key Events:

1. Draft Environmental Evaluation;
2. Preliminary Engineering - Title I;
3. Final Environmental Evaluation;
4. Site and Preliminary Design Validation (SPDV) Construction;
5. Detailed Design - Title II;
6. Construction of Construction Exhaust and Salt Handling Shaft;
7. Construction of Ventilation Supply and Service Shaft;
8. Construction of Waste Handling Building;

9. Underground Development;
10. Construction of Emergency Generator Building;
11. Construction of Waste Shaft;
12. Construction of Storage Exhaust Filter Building;
13. Computer Installation for the Facilities Alarm, Control and Monitoring Systems;
14. Operations;
15. Retrievability Decision for TRU Waste;
16. High Level Waste Retrieval and Shipping; and
17. Decontamination and Decommissioning.

D. Other significant activities may from time to time be agreed upon as Key Events or one or more of the above Key Events may be deleted or revised pursuant to the provisions of Paragraph A of Article I of the Working Agreement.

ARTICLE VIII - CONSULTATION AND COOPERATION

A. DOE shall keep the State currently and fully advised relative to WIPP in accordance with this Agreement and the requirements of the Working Agreement so that the State may make independent reviews on public health and safety concerns relative to WIPP.

B. The data, reports and other material to be furnished the State in order to meet the foregoing requirement as to a particular Key Event shall be identified in the Working Agreement as work progresses toward achieving that Key Event. The types of data, reports and other material DOE shall furnish the State include, but are not limited to, draft and final environmental impact assessments and statements; technical reports and program plans; administrative and technical progress reports; the safety analysis report and amendments; construction and engineering design documents; and legislative land withdrawal proposals.

C. In order for the State to make the independent reviews on public health and safety under this Article, the State shall have the right to conduct reasonable independent monitoring and testing of on-site activities related to the WIPP project; provided, however, that such monitoring and testing shall not unreasonably interfere with on-site activities.

D. It is recognized that as activities on WIPP are carried on, the Milestones involved in particular Key Events shall be identified with more precision.

E. The parties have negotiated a Working Agreement, identifying for each of the early Key Events the appropriate Milestones, the documents DOE is to submit to the State, the timing for such submissions, the timing for the State to identify public health and safety concerns and the process to be followed to try to eliminate those concerns before there is recourse to the procedure set forth in Article IX of this Agreement. From time to time the Working Agreement shall be changed and added to as therein provided by agreement of the parties in consonance with the intent of this Agreement.

F. The Working Agreement, as agreed upon and changed and added to from time to time, shall be part of this Agreement as Appendix B. Revisions to the Working Agreement consistent with the provisions of this Agreement shall not be considered as modifications to this Agreement for purposes of Paragraph B of Article V of this Agreement.

G. Nothing in this Agreement shall preclude the State from making available to the public copies of all data, reports and other material furnished the State by DOE pursuant to the provisions of this Article.

ARTICLE IX - CONFLICT RESOLUTION

A. In the event that actions under Article VIII of this Agreement do not satisfy the State's concern or concerns as to the public health and safety (including the identification of Key Events and Milestones), the principal representative of the State and the Manager, ALO shall meet to discuss the matter in detail. Within 10 calendar days after conclusion of the discussion, the Manager, ALO shall advise the State in writing what DOE action, if any, is contemplated with respect to the State's particular concern or concerns. If the State is not satisfied by the written determination of the Manager, ALO, the Governor shall notify the Secretary in writing within 10 calendar days of receipt of such determination that the State intends to invoke the provisions of this Article and the reasons therefor. The Governor may not delegate his authority under this Paragraph. A copy of the notification shall be furnished the Manager, ALO.

B. Within 30 days after notification under Paragraph A of this Article, the principal representative of the State and the Manager, ALO shall appoint one (1) mutually agreed upon recognized, independent expert in the particular field involved as the conflict resolution hearing officer. The conflict resolution hearing officer may employ as many experts in the particular field or fields involved and support staff as he shall determine are necessary to assist him in making a recommendation or recommendations on the matter or matters before him.

C. Within 15 calendar days after the appointment of the conflict resolution hearing officer, the principal representative of the State and the Manager, ALO shall each submit to the hearing officer a written statement of their respective positions and the basis therefor. The hearing officer may hear oral presentations by the State and the Manager, ALO.

D. Nothing in this Article shall preclude the State or the Manager, ALO from asking for and receiving from the hearing officer a reasonable extension of the time limit set forth in Paragraph C of this Article for good cause, such as recourse to the advice of outside experts in the particular field or fields involved.

E. The conflict resolution hearing officer shall compile and maintain an accurate record of all written submissions and a transcript of any oral presentations made to him pursuant to Paragraph C of this Article.

F. The conflict resolution hearing officer shall consider all written submissions and oral presentations in the record and transcript required by Paragraph E of this Article and shall make written recommendations on the matter or matters before him which shall refer to the specific facts in that record relied upon by him. The responsibility for making written recommendations under this Paragraph shall not be delegated by the conflict resolution hearing officer.

G. The conflict resolution hearing officer shall transmit his written recommendations along with a copy of the record and transcript to the Secretary, the principal representative of the State and the Manager, ALO within 30 calendar days following his receipt and consideration of all written submissions and oral presentations authorized by Paragraph C of this Article.

H. Within 10 calendar days following receipt of the written recommendations of the conflict resolution hearing officer and the record and transcript, the Governor and the Manager, ALO may submit their own written comments and recommendations to the Secretary which shall be made a part of the record required by Paragraph E of this Article. An information copy of any such comments and recommendations by either party shall be transmitted to the other party.

I. Within 25 calendar days following receipt of the written recommendations of the conflict resolution hearing officer and the record and transcript, the Secretary shall issue a written decision on the matter or matters before him which shall include the basis in the record for such decision and shall constitute final agency action on and resolution of the matter or matters under this Agreement. Issuing a decision under this Paragraph may not be delegated by the Secretary. Copies of the decision shall be transmitted to the Governor and the Manager, ALO.

J. Upon notification to the Secretary under Paragraph A of this Article that the State intends to invoke this Article, DOE shall not commence any Key Event if the commencement of such Key Event is inconsistent with the concern or concerns of the State under consideration under this Article unless specifically authorized in writing by the Secretary or agreed to in writing by the Governor. In the event that the Secretary decides to authorize DOE to commence any Key Event pursuant to the provisions of this Paragraph, that written authorization shall include the basis for such decision and a copy of it shall be transmitted to the Governor at the same time that it is transmitted to the Manager, ALO. The Secretary may not delegate his authority under this Paragraph.

K. The decision of the Secretary under Paragraph I of this Article shall be implemented by DOE.

L. Nothing in this Article shall preclude the withdrawal, at the State's request, of a matter from further consideration under this Article.

M. Nothing in this Article shall preclude the State from seeking written public input at the State level which shall be transmitted by the State to the conflict resolution hearing officer and shall be made part of the record required by Paragraph E of this Article; provided, however, that neither such solicitation of input nor the input itself shall delay the conflict resolution process beyond the time limitations set forth in this Article.

N. Nothing in Article IX shall be construed to be a waiver by the State of New Mexico of judicial review of any final agency actions of the Secretary of DOE or of the Secretary's aforementioned written authorizations to commence Key Events.

ARTICLE X - DOE ASSISTANCE

The parties recognize that in order for the State to comment and make recommendations under this Agreement it must have adequate resources to carry out an independent review of WIPP. DOE shall continue to assist the State in obtaining the resources necessary for the State to undertake a meaningful independent review of the public health and safety aspects of WIPP.

ARTICLE XI - SCOPE OF AGREEMENT

A. It is recognized that a number of State and U.S. Government agencies, in addition to the Task Force and DOE, have jurisdiction over various matters involving WIPP. This Agreement does not supersede, limit, modify, relinquish or waive the authorities, rights, jurisdictions or responsibilities of such agencies. The parties recognize that such authorities, rights, jurisdictions and responsibilities do not necessarily remove a matter from discussion.

B. This Agreement is a binding enforceable agreement between the State of New Mexico and the Department of Energy. The provisions of this Agreement and the Working Agreement incorporated herein shall not be construed to limit, modify, relinquish or waive any right which the State, the U.S. Government or their citizens may have to seek administrative or judicial review of any action by the Secretary, DOE or the State on any matter relating to any activity conducted in connection with the WIPP project pursuant to any applicable regulation, law or constitutional provision of the State or the United States. Nothing in this Agreement shall confer or be deemed to confer any right to judicial review of any action by the Secretary except as otherwise provided by any applicable regulation, law or constitutional provisions of the State or the United States. The execution of this Agreement of itself does not constitute State approval of any specific past or future action or omission by the Federal Government with respect to the WIPP project.

IN WITNESS WHEREOF, the parties have signed this Agreement in several duplicate originals.

STATE OF NEW MEXICO

Bruce King
(Governor)

July 1/81
(Date)

UNITED STATES DEPARTMENT OF ENERGY

James B. Edwards
(Secretary)

JUN 30 1981
(Date)

APPENDIX A

PUBLIC LAW 96-164 (S.673); December 29, 1979

DEPARTMENT OF ENERGY NATIONAL SECURITY AND MILITARY APPLICATIONS OF NUCLEAR ENERGY AUTHORIZATION ACT OF 1980

TITLE II - GENERAL PROVISIONS

WASTE ISOLATION PILOT PLANT, DELAWARE BASIN, NEW MEXICO

Sec. 213. (a) The Secretary of Energy shall proceed with the Waste Isolation Pilot Plant construction project authorized to be carried out in the Delaware Basin of southeast New Mexico (project 77-13-f) in accordance with the authorization for such project as modified by this section. Notwithstanding any other provision of law, the Waste Isolation Pilot Plant is authorized as a defense activity of the Department of Energy, administered by the Assistant Secretary of Energy for Defense Programs, for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission.

Consultation and cooperation

(b)(1) In carrying out such project, the Secretary shall consult and cooperate with the appropriate officials of the State of New Mexico, with respect to the public health and safety concerns of such State in regard to such project and shall, consistent with the purposes of subsection (a), give consideration to such concerns and cooperate with such officials in resolving such concerns. The consultation and cooperation required by this paragraph shall be carried out as provided in paragraph (2).

Written agreement

(2) The Secretary shall seek to enter into a written agreement with the appropriate officials of the State of New Mexico, as provided by the laws of the State of New Mexico, not later than September 30, 1980, setting forth the procedures under which the consultation and cooperation required by paragraph (1) shall be carried out. Such procedures shall include as a minimum--

(A) the right of the State of New Mexico to comment on, and make recommendations with regard to, the public health and safety aspects of such project before the occurrence of certain key events identified in the agreement;

(B) procedures, including specific time frames, for the Secretary to receive, consider, resolve, and act upon comments and recommendations made by the State of New Mexico; and

(C) procedures for the Secretary and the appropriate officials of the State of New Mexico to periodically review, amend, or modify the agreement.

Submittal to congressional committees

(3) As soon as practicable after the date on which the agreement referred to in paragraph (2) is entered into by the Secretary and the appropriate officials of the State of New Mexico, but not more than 15 days after such date, the Secretary shall transmit to the Committees on Armed Services of the Senate and the House of Representatives copies of such agreement, and a period of 45 days shall elapse while Congress is in session before such agreement becomes effective unless the Committees on Armed Services of the Senate and the House of Representatives, in writing, waive any portion of such 45-day period. The Secretary shall promptly notify such committees of any amendment or modification made to such agreement under paragraph (2)(C).

(c) No law enacted after the date of the enactment of this Act shall be held, considered, or construed as amending, superseding, or otherwise modifying any provision of this section unless such law does so by specifically and explicitly amending, repealing, or superseding this section.

Approved December 29, 1979.

APPENDIX B

WORKING AGREEMENT FOR CONSULTATION AND COOPERATION

This Working Agreement for Consultation and Cooperation forms part of the Agreement for Consultation and Cooperation between the State of New Mexico (hereinafter referred to as the "State"), as represented by the Chairman, Radioactive Waste Consultation Task Force, and the United States Department of Energy (hereinafter referred to as "DOE"), as represented by the Manager, Albuquerque Operations Office (hereinafter referred to as the "Manager, ALO"), and is identified as Appendix B.

ARTICLE I - PURPOSE AND INTENT

A. This Working Agreement is designed as a dynamic document which sets forth the working details of the consultation and cooperation process contemplated by the underlying Agreement for Consultation and Cooperation. The Manager, ALO and the State shall revise this Working Agreement from time to time as is agreed to be mutually desirable to facilitate and maximize the benefits of the intended process of consultation and cooperation. Any revision may be initiated at the written request of either party setting forth the revision or revisions requested together with the reason or reasons therefor. The other party shall consider the requested revision or revisions, shall respond to the request in writing and shall enter into negotiations in good faith within 30 days of receipt of the request.

B. It is agreed that the process described in this Working Agreement for the Key Events and Milestones shall establish the general pattern to be followed in the consultation and cooperation process, subject to such improvements as are deemed desirable by the parties, for the additional Key Events and Milestones to be added to this Working Agreement.

ARTICLE II - GENERAL

A. DOE shall give prior written notice to the State of its intention to commence Key Events identified in this Working Agreement.

B. If the State has any concern or concerns as to public health and safety, the State shall use its best efforts to advise DOE on such concerns or concerns within the time frames specified in this Working Agreement; provided, however, that notwithstanding any time frames specified in this Working Agreement, the State may at any time advise DOE of its concern or concerns as to public health and safety. It is recognized, however, that the status of WIPP at the time the State raises a concern may in itself place a limit on DOE's ability to accommodate the concern.

C. The State and DOE shall discuss the State comments with a view toward providing clarification and satisfying any concerns the State may have as to public health and safety. It is recognized that this shall be an ongoing process, with all reasonable efforts being made to resolve the matter by both parties at the lowest level of local authority.

D. In the event that actions under Paragraph C of this Article do not satisfy the State's concern or concerns as to the public health and safety, the provisions of Article IX of the underlying Agreement shall be followed.

E. The parties recognize that prior consultation cannot be carried out for those Key Events or Milestones that have already commenced or been completed, such as Title I design. However, the State may comment and make recommendations on Key Events and Milestones completed or underway.

F. Where a State or Federal permit is a prerequisite to any action by DOE (e.g., access roads, site development or discharge of pollutants), that action shall not be carried out until the appropriate permit has been obtained.

G. The data, reports and other material to be furnished to the State by DOE and to DOE by the State for each Key Event after commencement of that Key Event shall be as agreed to by the Manager ALO and the State. Each such agreement shall be reflected in a written modification to this Working Agreement.

ARTICLE III - SAFETY ANALYSIS REPORT

A. The Safety Analysis Report (SAR), as amended from time to time, constitutes the most comprehensive document concerning WIPP both in general and specifically as related to public health and safety as well as other matters. The SAR is a dynamic document describing all aspects of the WIPP design and shall be amended by way of revision and additions throughout the entire WIPP project. The degree of detail provided in this Article aids in the negotiation of Article IV of this Working Agreement.

B. DOE shall furnish to the State the various chapters of the SAR and amendments to the SAR in order to afford the State both the opportunity to review these chapters and amendments and the opportunity to express to DOE any public health and safety concerns the State may have. It is anticipated that the furnishing of this material, the State's review, the State's comments and recommendations and DOE's response shall be an ongoing process in accordance with the procedures identified in Paragraphs C and D of Article II of this Working Agreement. The State shall be represented by the Director of the State's Environmental Evaluation Group in matters relating to review of, and comments and recommendations on, the SAR and amendments and references thereto.

C. The SAR shall contain the following material:

Chapter 1 - Introduction and General Description

This chapter provides an overview of WIPP and sets forth general information on specific features of WIPP. Included is information on:

1. Location;
2. Mission;
3. Organization;
4. Facilities - both surface and underground;
5. Operations - including retrieval; and
6. Research and Development programs.

Chapter 2 - Site Characteristics

Information is included in the following areas:

1. Geography and Demography - including details on location, site description, traffic patterns, population distribution, land and water uses and agriculture;
2. Nearby Industrial, Transportation and Military Facilities - including current as well as growth projections;
3. Meteorology - including regional climatology, local meteorology, measurement programs, diffusion estimates, paleoclimatology and climatic changes;
4. Surface Hydrology - including a hydrologic description, floods, dam failures, effluents and chemical/biological composition of adjacent water courses;
5. Subsurface Hydrology - including ground water systems, utilization and monitoring;
6. Regional Geology - including physiography, geomorphology, history, stratigraphy, lithology, tectonics and pleistocene climate of the site region;
7. Site Geology - including further details for the site similar to 6 above;
8. Vibratory Ground Motion - including seismicity, tectonic activity and potential for earthquakes;
9. Surface Faulting - including discussions of capable faults and results of investigations to date;
10. Stability of Subsurface Materials and Foundations - including materials properties, soil and rock characteristics, ground water, design criteria and instrumentation; and
11. Slope Stability - including boring logs.

Chapter 3 - Principal Design Criteria

Specifically addressed are criteria on:

1. Definition of mission - including waste characterization, repository functions, storage capacities, retrievability and by-products;
2. Structural and mechanical design - including wind, tornado, flood, backfill, missile, seismic, snow, thermal and soil erosion;
3. Safety protection criteria - including confinement, handling, emplacement, retrieval, fire, explosion, radiological, criticality and mine safety;

4. Design classification - including definition of design classes and severe natural events; and
5. Decommissioning - including decontamination, backfilling, sealing, record maintenance and site markers.

Chapter 4 - Plant Design

This chapter provides a detailed facility description. This chapter shall be more frequently updated than any other SAR chapter to reflect the ongoing design and construction processes. Included are details on:

1. Location details;
2. Surface facilities - including all buildings for waste handling and support functions;
3. Shafts and subsurface facilities - including shafts and storage and experimental areas;
4. Service and utility systems - including ventilation, electrical, fire protection, waste water, salt handling, radwaste, transportation, alarms, maintenance, compressed air and underground fuel;
5. Emplacement and Retrieval - including equipment for all waste forms; and
6. Underground excavation equipment - including miners, roof bolters, etc.

Chapter 5 - Process Description

This chapter describes the processes utilized in transporting, handling, emplacing and retrieving all waste forms. Processes discussed include:

1. Contact-handled (CH) waste handling;
2. Remote-handled (RH) waste handling;
3. Experimental handling;
4. Plant generated radwaste;
5. General processes - including instrumentation, criticality safety and waste logging;
6. Underground excavation - including methods of materials handling, ventilation and backfill;
7. Control room;
8. Analytical Sampling; and
9. Retrievability of all waste forms.

Chapter 6 - Radiation Protection

This chapter is provided to address DOE requirements and existing federal laws governing occupational exposures, as well as to provide information on normal operation dose consequences. Information provided includes:

1. As low as reasonably achievable (ALARA);
2. Radiation sources;
3. Radiation protection;
4. On-site dose assessment;
5. Radiological control program; and
6. Off-site dose assessment.

Chapter 7 - Accident Analysis

This chapter provides the evaluation of potential impact on public health and safety of operational accidents which could result in off-site radiological releases. Specifically included are:

1. Accident classifications;
2. Source terms and analytical methods; and
3. Accident descriptions and actual analyses.

Chapter 8 - Long Term Waste Isolation Assessment

This chapter covers the long term impact on public health and safety following decommissioning and site control termination. Included are:

1. Identification of potential communication modes;
2. Modeling methods; and
3. Consequence analyses.

Chapter 9 - Conduct of Operations

This chapter provides information on facility operations specifically including:

1. Organizational structure;
2. Acceptance tests;
3. Training;
4. Operating procedures;
5. Security; and
6. Emergencies.

Chapter 10 - Operating Limits and Controls

This chapter provides limits on operation based on preservation of the assumptions used in the design and safety analyses. Specifically covered are:

1. Design Limits - including heat generation rates, waste content and containers;
2. Operating limits and surveillance requirements - including limits on conveyances, loading, underground fuel storage and backfill;
3. Design features;

4. Administrative controls; and
5. Guidelines for the operating organization - including monitoring instrumentation, electrical power systems and facilities.

Chapter 11 - Quality Assurance

This chapter provides information on organizational and administrative programs during site investigation, design, construction and operation. Quality Assurance programs are presented for each of the primary contracting organizations as well as DOE.

ARTICLE IV - KEY EVENTS AND ASSOCIATED MILESTONES

Where a Key Event has already commenced or been completed, DOE shall, at the State's request, review with the State the information already furnished by DOE to the State and provide such supplementary information as may be agreed upon. It is recognized, however, that DOE's ability to respond to any particular State concern may be limited after the commencement or completion of a Key Event or Milestone.

A. DRAFT ENVIRONMENTAL EVALUATION (already commenced)

1. Issuance Of Geological Characterization Report - GCR

   This background document has been furnished to the State.

2. Issuance Of Draft Environmental Impact Statement

   (a) DOE has furnished this document to the State.
   (b) The State has reviewed and commented in accordance with NEPA.
   (c) DOE has acknowledged the State's comments after holding additional hearings at the State's request.

B. PRELIMINARY ENGINEERING - TITLE I (already commenced)

1. Conceptual Design And Design Criteria

   The State has been furnished this documentation.

2. Title I Design Report

   (a) The State has been furnished the technical portions of the Title I design report.
   (b) DOE shall furnish any supplements to these portions when completed.

3. Issuance Of Safety Analysis Report (SAR) For Title I Design

   (a) The State has been furnished the SAR in five volumes.
   (b) The State's review is in progress and shall be an ongoing process.

(c) DOE is responding and shall continue to respond to the State's comments.
(d) Consultation shall continue.
(e) DOE-initiated changes to the SAR shall follow this same ongoing process.

C. FINAL ENVIRONMENTAL EVALUATION (already commenced)

1. DOE Applications For State And Federal Permits Or Approvals

DOE shall transmit copies of applications and supporting documentation to the State at time of application.

2. Issuance Of Final Environmental Impact Statement (FEIS)

DOE shall furnish copies to the State at the time of approval by the Secretary.

D. SITE AND PRELIMINARY DESIGN VALIDATION (SPDV) CONSTRUCTION

1. Institutional (For Informational Purposes)*

(a) FEIS and Record of Decision
(b) Any required BLM cooperative agreement on land use
(c) Any required right-of-way acquisition
(d) Any leases that are required

(e) All applications for State and Federal permits and clearances
(f) All approved State and Federal permits and clearances

2. SPDV Design

Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within 60 calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within 30 calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

(a) Design criteria
(b) SPDV experimental program summary (SAR amendment - see Article III, Paragraph C, Chapter 1, item 6)
(c) Technical portions of the SPDV design (furnsihed as discrete construction contract packages)

3. Notification (For Informational Purposes)

(a) 30 calendar day notification prior to site mobilization of first SPDV construction contractor
(b) Baseline SPDV schedule summary

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*Wherever documents are indicated in this Working Agreement as being furnished "for informational purposes", the furnishing of the documents is intended to provide background information for other Milestones or Key Events. While the State need not furnish comments, the State may discuss such documents with DOE under this Working Agreement.

E. DETAILED DESIGN - TITLE II

1. TITLE I

(a) Title I design package

DOE has provided this documentation to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within * calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

(b) Title I design criteria

DOE has provided this document to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within ___ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

(c) Waste acceptance criteria

DOE has provided this documentation to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within ___ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

(d) SAR amendments

Reasonable time limits for State review and comment and the corresponding DOE response to the State shall be agreed upon between the State and the DOE WIPP Project Manager for each amendment.

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*Wherever in this Working Agreement time requirements are left blank, it is intended that such requirements be negotiated by the principal representatives of the parties.

2. Institutional (For Informational Purposes)

   FEIS and Record of Decision (furnished for informational purposes under IV.D.1 above)

3. Notification (For Informational Purposes)

   Periodic progress reports, if any, for SPDV

F. CONSTRUCTION OF CONSTRUCTION EXHAUST AND SALT HANDLING SHAFT

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Institutional (For Informational Purposes)

   (a) Federal land withdrawal
   (b) State land acquisition
   (c) Lease acquisition
   (d) All applications for State and Federal permits and clearances
   (e) All approved State and Federal permits and clearances

3. Preliminary Geotechnical Suitability Determination

   (a) Tectonic stability
   (b) Deep dissolution
   (c) Regional hydrology
   (d) Site structural stability
   (e) Brine reservoirs
   (f) Breccia pipes

4. Preliminary Transportation Evaluation

   (a) Radiological impacts under normal conditions
   (b) Radiological impacts under accident conditions

5. Preliminary Experimental Program

   Preliminary high level waste experimental plan

6. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

G. CONSTRUCTION OF VENTILATION SUPPLY AND SERVICE SHAFT

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Titel II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

H. CONSTRUCTION OF WASTE HANDLING BUILDING

The following Milesones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

I. UNDERGROUND DEVELOPMENT

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

J. CONSTRUCTION OF EMERGENCY GENERATOR BUILDING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

K. CONSTRUCTION OF WASTE SHAFT

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

L. CONSTRUCTION OF STORAGE EXHAUST FILTER BUILDING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the Title II design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Progress reports on SPDV
   (b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
   (c) Baseline schedule summary

M. COMPUTER INSTALLATION FOR THE FACILITIES ALARM, CONTROL AND MONITORING SYSTEMS

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

(a) Technical portions of the Title II design package
(b) Title II amendments to the SAR

2. Site Emergency Response

Site emergency response manual

3. Notification (For Informational Purposes)

(a) Progress reports on SPDV
(b) At least 30 calendar day DOE notification to the State prior to site mobilization of construction contractor
(c) Baseline schedule summary

N. OPERATIONS

1. Final Facility

Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within ___ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

(a) Final facility amendments to the SAR
(b) Operating procedures
(c) Final site emergency response manual
(d) Final waste acceptance criteria

2. Pre-Operational Testing

Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within ___ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

Pre-operational test reports

3. Final Transportation Evaluation

   (a) Department of Transportation certification(s) of shipping cask(s) (for informational purposes)
   (b) Safety Analysis Report(s) on Packaging (SARP)
   (c) Information on the mode of transport and routing as available

4. Final Experimental Program

   High level waste experimental plan and schedule

5. Notification (For Informational Purposes)

   (a) Seven calendar day notification prior to RH/CH TRU and high level waste retrievability demonstration
   (b) Seven calendar day notification prior to expected start of operations (i.e., receipt of first waste)
   (c) Periodic progress reports on full facility construction and SPDV experiments

O. RETRIEVABILITY DECISION FOR TRU WASTE

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Facility Performance Evaluation

2. Status Of Experimental Programs (Especially Borehole Plugging)

3. Final Geotechnical Suitability Determination (Update Of Preliminary Determination Incorporating Any Additional Data Acquired)

4. Final Retrieval Plan (If Retrieval Is Required)

P. HIGH LEVEL WASTE RETRIEVAL AND SHIPPING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Decommissioning And Decontamination Plan For Experimental Facility Underground Area

2. Transportation Modes And Routes (As Available)

Q. DECONTAMINATION AND DECOMMISSIONING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future,as appropriate.

1. Decommissioning Plan (Including Borehole Plugging And Decontamination Of Surface Facilities)

2. Monitoring Plan
3. Site Control Termination Plan
4. Retrieval Of Last Experimental Waste
5. Shipment Offsite Of Last Experimental Waste
6. Public Health And Safety Radiation Standards Plan

ARTICLE V - INTERPRETATION AND IMPLEMENTATION

This Working Agreement shall be interpreted and implemented in a manner consistent with the underlying Agreement.

APPENDIX B

COMPREHENSIVE TOPICAL REPORTS TO BE MADE AVAILABLE TO ENVIRONMENTAL EVALUATION GROUP BEFORE THE DECISION TO CONSTRUCT THE PERMANENT REPOSITORY

1. Deep Dissolution: Including all available pertinent up-to-date data and arguments for and against the hypothesis of deep dissolution in the Delaware Basin and its potential effect on WIPP.
2. Disturbed Zone: Including all available pertinent up-to-date data and analyses of the nature, extent and potential significance to the repository.
3. Breccia Pipes: Including all available pertinent up-to-date data and analyses concerning the existence of breccia pipes in the basin and the reef, potential for future breccia pipe development, and their significance to WIPP.
4. DMG Hydrology: Including all available pertinent up-to-date data and analyses of the hydrologic characteristic, geochemistry, potential and rates for salt removal, and directions of flow and possible communication with other aquifers e.g., reef aquifer, San Andres Limestone aquifer and shallow aquifers.
5. Regional Hydrology: Including all available pertinent up-to-date data and analyses of the recharge and discharge area, flow times and interconections of aquifers near the site.
6. Natural Resources: Including detailed plans to control recovery of potash and hydrocarbons without disturbing the repository, and the evaluation of potential consequences of these plans.
7. Results of SPDV Site Validation Experiments: Including all pertinent results and analyses of experiments as listed in WIPP-TME-2975, pp. 15-16.
8. Plans for SPDV Design Validation: Updated, detailed plans and rationale for the proposed design validation experiments as outlined in TME-3058 and TME-3063.

9. Results of SPDV Design Validation Experiments: Including all pertinent results and analyses of experiments as agreed by DOE and EEG. (Further results to be later provided per *note below.

10. Plans for Simulated Wastes Experiments: Updated, detailed plans and rationale for the proposed experiments.

11. Results of Simulated Waste Experiments: Including all pertinent results and analyses of experiments as agreed by DOE and EEG*.

*NOTE: To be completed prior to the 45 day review period and prior to the decision to proceed as set forth in Paragraph 5 of the Order.

APPENDIX C

ADDITIONAL INVESTIGATIONS, THE RESULTS OF WHICH TO BE MADE AVAILABLE TO ENVIRONMENTAL EVALUATION GROUP BEFORE THE DECISION TO CONSTRUCT THE PERMANENT REPOSITORY

1. Test Brine Reservoir in Deformation Zone: Reopen ERDA-6 and allow it to flow for at least 10 days to measure the depletion of pressure at regular intervals in this well, and if access can be obtained, in Pogo #1 federal well. Perform other necessary tests to determine the size, age, origin, and possible association with aquifers or other brine pockets.
2. Report on Brine Reservoirs: Provide a comprehensive topical report on available information concerning brine reservoirs in evaporite beds found in the Delaware Basin including the results of tests on ERDA-6. This should include available information on the location, sizes, quantity, pressures, quality, ideas on origin and methods of handling in mines.
3. Horizontal Exploration of the Disturbed Zone: At the earliest possible stage of facility construction and before emplacement of any waste at the WIPP repository, provide for an additional 3000 feet of drift north of presently planned station #2, which is approximately 2500 feet North of ERDA #9, and drill 3000 feet horizontal cores to the north from this new location.
4. Fracture Flow in Rustler Aquifers: Evaluate the extent of fracture flow in the Rustler aquifers and provide a report on the effect of fracture flow on the resultant release pathways considered in the FEIS.
5. Study of Aquifer Characteristics: Using in-situ methods, assess quantitatively and qualitiatively the lithology, porosity, permeability, bulk, density and distribution coefficients of the Rustler aquifers.

Senator DOMENICI. It is one thing to say we will do concurrence and consultation in terms of the Federal Government getting together with a lesser government, be it the tribe or the State, but it is another thing to talk about when it ought to be done.

And as I read this, the upfront determination by the President upon recommendation of DOE of two possible sites, with a third to be prescribed thereafter, would all be done without any requirement of consultation and concurrence. Perhaps you have addressed this to some extent and can go into more detail with me, but I am not sure that is the right way and I would appreciate having your thoughts.

I would suggest that perhaps some aspects of consultation and concurrence be required right upfront when a site is selected as distinguished from waiting until later on, as I read it in this bill, until the site is decided upon.

Mr. BROWN. Part of the problem is the number of States who are potential host States. It had been the case that most of the States in the West were under consideration. Last year a number of granite States were added.

I think the number of States then under consideration was somewhat over half of the States. And the question would be whether each of these States should conclude an agreement with DOE, even though at that point they were only under consideration through a literature search, nothing beyond that.

The fact is that any States that are under consideration or feel that they soon will be have begun discussions with DOE and attempted to conclude arrangements that govern the relationships between the States and DOE.

That is prior to the passage of this legislation.

Senator DOMENICI. Yes.

Mr. BROWN. The National Governors' Association has been working with a group of States, the potential host States; it is a State working group on high-level radioactive waste management, composed of 10 of the States which feel they are potential sites for high-level waste disposal as well as through the away-from reactor States.

Most of them feel that it is advisable to establish the ground rules for State-Federal regulations at the earliest possible date. Some of that work is being done now even prior to legislation on a national level.

Senator DOMENICI. Wouldn't this legislation, the way it is drawn, really make that just whether or not they wanted to do it as contrasted with the second aspect, when they have to do it.

If the Federal Government didn't want to consult and concur with the States, local governments and and Indian tribes as they are looking at the site, they wouldn't have to do it under the legislation?

Mr. BROWN. As I read this legislation, that is correct.

Senator DOMENICI. How many of these sites are you going to build if we get something going and meet the objectives here?

How many do you imagine will be built in the country?

Mr. BROWN. In terms of permanent repositories?

Senator DOMENICI. Yes.

Mr. BROWN. The numbers I have heard are two or three.

Senator Domenici. Doesn't it seem to you that in trying to minimize the political flack that occurs by establishing this so-called partnership we are back in the muddle. When we mandate a couple of States upfront for consideration, those States are going to be the final sites. You can tell them all you want that the rest of the study is continuing and other locations are being considered, but they will believe that the decision has already been made. They all know we are not going to have 10 respositories. From the experience in my State, I believe that if there isn't consultation and concurrence forthwith everyone will determine that Louisiana salt is the final site.

Do you believe that we are inviting such problems with the present wording in the bill?

Mr. Brown. That is provided by the selection in the timeframe. If the national sites have to be selected in the very near future, that those areas which have so far received the most consideration is where DOE is going to turn and there is going to be a sense that these sites are preselected, but there will not be time to examine other media as thoroughly as those that have already undergone investigation.

Senator Domenici. And the only objection you have to the rather elaborate process of beginning consultation and concurrence at an earlier date than provided in this bill is that we might have to do that with a whole batch of States because they are looking at a number of them?

Mr. Brown. Yes.

Senator Domenici. You weigh that off on what I have described and we have to pass judgment on which will be the most forthright way of getting our States and tribal governments into a conforming position that they are being consulted with and are going to be provided with this so-called partnership of a decisionmaking nature.

Mr. Helminski, would you talk at me on this issue?

Mr. Helminski. Sure, Senator. Personally, I promote putting in place a cooperative agreement at the earliest possible stage. When the Department of Energy would come into a State and say we want site surveys, geological investigations or just some exploratory work, at that stage, if only to cover that stage of activities that States would essentially sign an agreement with DOE.

The State planning council recommended that cooperative agreements be established at very early stages, and which is just the site involvement stage, the possibility that the site is involved.

We have prepared and have been promoting and working with the States in developing such an intergovernmental agreement, and I have mentioned it earlier, and if you so wish, Mr. Chairman, you can enter it into the record.

Senator Simpson. We will do that without objection.

Mr. Helminski. I mentioned in my testimony that I would definitely have incentives for cooperative agreements early on in the process, and provide incentives for the Secretary and the State to get that done. One of the very early problems with dealing with this issue and the fact that there are not going to be 50 repositories was the Governors had to essentially come to grips with the fact that they didn't want to give the States a veto, No. 1, which they adopted, the Governors' Association did and the State planning council did.

The Governors do not have a veto over the placement of such a facility. Even in the first studies only 36 States were identified as possible sites for repositories, what do you do then?

The solution was give everyone of those States a veto. That didn't work out well. They all exercised the veto. The intermediary solution is to require all the States to sign intergovernmental agreements.

They may be staged agreements, an agreement to cover site investigation, area investigation. When it gets to site characterization, there is an agreement which could cover consultation and concurrence at the site characterization phase rather than at the site selection phase.

I really think there are two issues here. There is the intergovernmental cooperative agreement that outlines how the State, Indian tribes, local governments, interact with the administration and then the process of site selection and consultation and concurrence.

I recommend that consultation and concurrence, being the Presidential recommendation, the congressional process, be moved right at the site characterization decision, not at site selection, where it is now in the bill.

That the President have the ability of three or four sites at the same time being considered or operative in a consultation concurrence process, rather than focusing on one site.

In fact, the President is to make a decision on one site, and there is only one site available at that time and another one being made available—in 1983 one follows—and the site survey is not completed until 1980, given the fact that we only need three or four, you are putting a lot of burden and political pressure on one or two States.

My opinion is you keep all the players at the game until the game is over with.

Senator DOMENICI. Well, I agree with you. Even if you have this upfront, expedited Presidential decision, it would appear to me that you have a good point that you shouldn't have 27 States sign agreements. It appears to me that in terms of what we are trying to resolve it is folly. It ought to be at least five States.

Mr. HELMINSKI. Without having agreements, if one State drops out or is dropped out through the political process, technical recommendations aside, when it gets down to decisions between the Congress and the President and the Governors, a good deal of it is going to be political acceptability.

If one State that is a possible alternative for a site is excluded early on, then why should not the public in the other State be—accept the possibility of accepting the waste?

And the fallacy of what was going on for many years with this investigation, when the administration did give States an out and out veto.

Senator DOMENICI. I want to yield back to the chairman here.

Mr. Jim, you didn't get your comments on my question.

Mr. JIM. Mr. Domenici, I appreciate your insight and especially on the consultation and concurrence and the wording.

I also can appreciate your feel along with Mr. Johnson about the site location. The cooperative agreements are long overdue in Indian country, and we feel that if we could have a specific say in the decision of what is going to happen to all this nuclear waste, of course, we would have a committee sort of as they have done in the past, where suppose you have 12 people and one Indian on the board who is consistently out-voted.

I hope we can come to see cooperative agreement, and I will certainly appreciate a copy of the agreement that New Mexico got.

Senator DOMENICI. This is my last question.

We talked about making sure that regions of the country share in this. I think you all answered to the chairman that they ought not all be in one place. But I don't know what incentive there is to agree at all on the problem?

Mr. HELMINSKI. The incentive on the part of the States?

Senator DOMENICI. Yes, or tribes.

Mr. HELMINSKI. That is a tough question to answer. One of the incentives has to come from the realization that we—from the leadership of the country that we do need nuclear power and we must dispose of waste and the fact is that we have no way out of it, and one of the problems of separating defense from nuclear waste is that you lose a lot of the incentives for an acceptable public solution.

Defense waste we will have. The public accepts the fact that we will produce nuclear weapons. Some part of the public does not accept the fact that we need nuclear power.

That is why I think a nuclear waste program should be a nuclear waste program and not a commercial nuclear waste program.

I think it takes astute leadership to pull this off without using the heavy hand of the Government and going through the court process.

I think Governors will accept decisions when involved. Governor Evans sat here 2 years ago and when asked would you allow waste in your State, he said, not at the present site, but there is a site in the State of Ohio—he said that if I am involved in the process, and I can assure the public that my concerns will be taken care of.

Six or seven years ago another Governor in a Western State was to accept, and I don't think it was politically acceptable, something on the order of what Senator Johnston is proposing, a retrievable storage facility and that requirements on that facility were technical in nature and public responsive in nature.

It was there. If political leadership is there, the Governors in biting off the fact when they told their colleagues you don't have a veto and we can't deal with that, I think they have shown the way 3 years ago with the now Secretary of Energy who started the process, and I think the environment is there.

Senator DOMENICI. Mr. Brown?

Mr. BROWN. A comment on the evolution of low-level waste policy. That used to be an anathema to the States, but about 2 years ago there was a proposal for Federal solution.

The States at that point concluded they could handle it better than the Federal Government and asked for the responsibility.

Certainly there are continuing problems with facing up to high-level repositories in other than Western States, but I think that various regions of the country who generate a very large amount of high-level waste are coming to the realization they have to own up to their responsibility.

Senator DOMENICI. Thank you very much. Thank you, Mr. Chairman.

Senator SIMPSON. Thank you, Pete.

In one of the questions I posed to you earlier, there was general agreement that—at least I did not hear anyone respond differently—that there is a need for a geographical distribution of nuclear waste repositories, and I think none of you seemed to challenge that comment, and I think that that comes back to what Senator Domenici is saying.

Mr. Jim, you made a good point previously about an ambiguity in section 708 of the bill. What is intended there is that if the Congress rejects the State objections to the facility, that this should not influence the NRC's later health and safety determination, but if one House of Congress supports the State's objections, then that stops the development right there, and that is it, the development of the faclity, and we can revise that provision in order to make that clear.

That was a very good point. I appreciate that.

Mr. JIM. Thank you.

Senator SIMPSON. I see Senator Johnston has gone. His questions about the definition of permanent are very real, and we found that in the last session. But certainly the public, I think, has a perception that there must be some form of a permanent, like we think of permanent, facility, and yet certainly I think, too, there should be a monitored facility which has retrievability.

I am not ruling that out. Actually, they complement each other. We should have a permanent repository, and what we think of as a multibarrier permanent repository with the waste enclosure and a geologic repository and another form and those additional multibarrier things that we think of as permanent and then we should have a monitored retrievable facility even perhaps near the permanent facility.

So those are things I think that for purposes of discussion and definition and legislation that we want to have, because I do not think I misstate the American public when I say they think that somewhere, sometime, like now, we ought to get started, we must have a form of a permanent repository in what we think of as just that.

Mr. JIM. I could not agree with you more, Senator. It is just that I think as was suggested, until we elaborate a little on your question about the geologic locations, I think as the gentleman to my left responded, the responsibility of the general public would be there more so if you had more locations.

As it is now, then you have the only people that feel responsible are just those in the direct area of the direct site.

Perhaps it may explain it more that, for instance, the new minority that is in the Hanford area, the rural farmers, and even those that really do not understand what the dangers are—first of all, I would like to state again that the Yakima Nation is neither pronuclear or antinuclear.

We are prosafety. That is what we strive for. We would like perhaps monitors on the monitors even, as Mr. Johnston alluded to.

We would like Hanford especially to live up to its minimum standards of safety. If I may read this one little short paragraph,

> The non-Indians who live in the rural surroundings of the Hanford Reservation, and who remain silent, or even openly support the use of Hanford as a place for dangerous waste, do so for reasons which may not be claimed as soundly supportive of Hanford as the solution. It is obvious that none would choose to live near the danger center. They may often cover that fear with enforced ignorance, indifference or a patriotic stance of duty to the country, which allows at least a rational explanation for an unrational situation.

To them, again, back to the concept of evacuation—it is meaningless to many Indian tribes, and I would like that consideration to be remembered, that the more people you draw into this situation, I think you will find more responsibility.

Senator SIMPSON. That is very true and that is a very provocative statement that you read.

Let me just ask two more questions and then we will conclude here, unless some other Senator would wish to come by and address the issue.

Under what conditions or limitations should a test and evaluation facility be developed?

What are your views on limitations contained in S. 1662?

Do you think those are adequate? I would be interested in your views.

Mr. BROWN. The nuclear power subcommittee will have to look at this in further detail. The National Governors' Association did testify before the Science and Technology Committee earlier this year on the House side about the test evaluation facility and expressed reservations at that point that this would be a method of circumventing the institutional protections that the States had come to expect and also some that would be incorporated under new legislation.

We are pleased at the efforts of this bill to integrate the facility into the overall waste management scheme. We feel that many of the questions that the States had about the facility have been answered.

Again, I would like to talk at greater length with our States possibly closer to the T. & E. facility before giving a final response on that.

Senator SIMPSON. Your comments on that, Mr. Jim?

Mr. JIM. Would you repeat that again, please?

Senator SIMPSON. I am saying under what conditions should a test and evaluation facility be developed? Do you have any views on the limitations contained in 1662 and do you feel those are adequate?

Mr. JIM. Well, we are back to consultation and cooperation again. I think the more general public we draw in, the more responsive the public would be.

Senator SIMPSON. I think that is important prior to everything we do, to allow the public to participate fully and never limit that if it can be avoided.

Did you have any comments on that?

Mr. Helminski. With regard to the T. & E. proposal, the council considered the T. & E. facilities. On page 10 of the report to the President, we outlined those recommendations.

They generally fall in line with what is in the bill. We do not call for licensing but we do call for it being defined.

We do call for the NRC to issue a policy statement to clarify what the Commission's role is with DOE, which is similar to what is implied in the bill.

I think it was NRC's concurrence with regard to the T. & E.

We qualified the statement saying if it is shown technically that it is needed and necessary to assure safe, permanent disposal. One thing, though, that we asked for and the bill does not make this provision is that the consultation and concurrence be applied for T. & E., since radioactive materials will be employed in the testing facility, that that be part of a process of consultation and concurrence.

Again, I question and would ask the committee to consider the scheduling of the decision of T. & E. relative to the decision on site characterization and how many sites you have and relative to the President's decision on final site selection.

At first blush, when you read the bill, you find the President making a decision on final site selection, but the operation of the T. & E. is occurring at the same time. I think those time schedules need to be juxtaposed a little better.

Senator Simpson. I have some other questions. I will submit those in writing, questions particularly about your views on the rather novel approach to financing that is contained in 1662, which I think is one of the reasons that it has moved off dead center again, and I will share those, but I want to ask you a final question.

I will submit the rest of those in writing. Do you think there should be any kind of provision for Federal impact assistance for affected States or tribes as we go into this issue of the comprehensive legislation?

If so, what provision for such assistance would you be recommending?

Mr. Brown. The National Governors' Association policy recommends impact assistance. We have not made a decision as to where that impact assistance would originate.

At the time our policy was passed, there were no proposals for funding other than out of the Federal Treasury, so I assume that there is a presumption that the impact assistance would have come through appropriations.

NGA policy does, however, refer to user's fee in terms of providing some assistance to communities to assesss the impact of the facility to give them an independent capability of assessing what the DOE plans are.

Again, that could be funded either through appropriations or could come out of the fee that is being proposed in 1762.

In terms of what is covered by impact, generally the States have supported impact assistance which takes care of quantifiable impacts on a community, negative impacts on a community, such as increased traffic, things of that sort, to take care of health problems that might arise, and also to provide the communities with an independent capability of carrying through on the consultation and concurrence provision.

A larger question has been the payment of incentives to communities, and that is addressed in a draft bill that is being proposed on the House side. We don't have any policy on that.

Although there have been some reservations raised about that, that it could be interpreted as a bribe and it might be viewed by the public as compromising some of the safety consideration.

Because the funds involved in at least one draft on the House side are substantial. At the risk of offending Governors, there are no strings attached; it simply goes to the Governor.

That is an attractive offer. If it happens to be his hometown, he might be inclined to sign up. But the existing NGA policy requests impact assistance for quantifiable impacts on the community.

Senator SIMPSON. I think that is what we think of as impact assistance, to alleviate the socio-economic impact due to facilities for public human health and safety.

I would be particularly interested in your response, Mr. Jim, to that.

Mr. JIM. Thank you, Senator. The Council of Energy Resource Tribes provides its membership with technical assistance, but not to the tune of the technical people that are physicists, et cetera, as needed, and I am sure it could be worked out somehow, we hope, with the Federal Government appropriating something to the Council of Energy Resource Tribes to provide this technical assistance to tribes.

Senator SIMPSON. I thank you.

As I say, I will submit some further questions.

Mr. Chairman, thank you. I think it certainly does augur well for some type of acceptable and appropriate legislation after 30 years of restricted and unrestricted dalliance, that we finally proceed toward something that is agreeable as it comes out of the Senate in the form of cooperation and cohesiveness, and I thank you very much for your support and your assistance, and also Senator Johnston and the staff.

It is most appropriate.

The CHAIRMAN [presiding]. Thank you, Senator Simpson.

Senator Johnston has requested that a paper prepared by Dr. R. Phillip Hammond in support of the retrievable storage concept be made part of the record and it will be made a part of the record.[1]

Thank you very much.

We will recess until 10:30 tomorrow morning.

[Whereupon, the hearing was recessed; to reconvene Tuesday, October 6, 1981, at 10:30 a.m.]

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[1] See app. II.

NUCLEAR WASTE DISPOSAL

TUESDAY, OCTOBER 6, 1981

U.S. SENATE, COMMITTEE ON ENERGY AND NATURAL RESOURCES, AND THE SUBCOMMITTEE ON NUCLEAR REGULATION OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, D.C.

The committee and subcommittee met, pursuant to notice, at 10:45 a.m., in room 3110, Dirksen Office Building, Hon. James A. McClure, chairman of the Energy Committee, presiding.

Present: Senators McClure, Simpson, Symms, Domenici, and Hart.

Also present: Energy committee staff: Charles A. Trabandt, chief counsel; Paul Gilman, professional staff member; Benjamin S. Copper and Willis Smith, professional staff members for the minority. Environment and Public Works staff: James Asselstine, counsel for the majority; and Keith Glaser, counsel for the minority.

OPENING STATEMENT OF HON. JAMES A. McCLURE, A U.S. SENATOR FROM THE STATE OF IDAHO

The CHAIRMAN. This is the second day of hearings on S. 1662 and S. 637. I might note that yesterday we had representatives from the National Governors' Association, from the Council of Energy Resource Tribes and from the Home State Planning Council on Radioactive Waste Management, and the testimony was generally supportive of the thrust of the legislation which is before us.

I would also note for the record that yesterday I introduced in the Senate a proposed amendment to the bill dealing with the issue of reprocessing which in my view is something that needs to be discussed.

The reason I attach it to this discussion today is it seems to me we need to be looking at the entire fuel cycle and you cannot look at the entire fuel cycle without looking at the issue of reprocessing.

I was persuaded in consultation with various people with respect to the development of this legislation that it was unwise at this time to attempt to write it into the bill which is pending before this committee for a variety of reasons.

It is a controversial issue. It begins to narrow the base of support for the total package. I think it is more important for us at this time to have broad support for the issue that is before this committee at this time so we can move quickly.

The issue of reprocessing might prolong that discussion. While I am convinced that is one of the items on the agenda for this

Nation, it is not necessarily an item before this committee at this time in these hearings.

I would encourage all witnesses and interested parties to file their comments on the printed amendment because it may be discussed when we get to the floor. I make that announcement at this time so people may have that notice and we can have the advantage of their thinking and comments with respect to that printed amendment.

The issue of reprocessing is an associated but separate issue. How that will be dealt with has been wrestled with for years in this country and we have not yet come to a resolution of that issue. We must at some point address it.

With that I want to welcome before us this morning Hon. Shelby Brewer, the Assistant Secretary for Nuclear Energy, the Department of Energy, together with the people with him.

Dr. Brewer, please identify the people with you and you may proceed with your statement.

STATEMENT OF DR. SHELBY T. BREWER, ASSISTANT SECRETARY FOR NUCLEAR ENERGY, DEPARTMENT OF ENERGY, ACCOMPANIED BY SHELDON MEYERS, DEPUTY ASSISTANT SECRETARY FOR WASTE MANAGEMENT; JACK THEREAULT, DIRECTOR, OFFICE OF PLANS AND EVALUATION; AND KERMIT LAUGHON

Dr. **Brewer**. Mr. Chairman, I am most thankful for the opportunity to appear before your committee and testify on a matter which we regard as one of the four major priorities in the Reagan nuclear policy.

I am accompanied today by Sheldon Meyers on my left, Deputy Assistant Secretary for Waste Management; on my immediate right, Jack Thereault, Director of the Office of Plans and Evaluation in my office. On my far right, Kermit Laughon, chairman of a task force which I appointed to formulate a reprocessing policy.

After several decades, the U.S. Government has yet to fulfill its responsibility to develop and deploy, and actually make operative, a coherent waste management strategy. One of the problems is that the exact and precise delineation of Federal and private sector responsibilities in high-level waste. It is not clear.

Legislation since, and even including, the 1954 Atomic Energy Act does not clearly delineate where and when in the nuclear fuel cycle high-level waste becomes a Federal responsibility. Although it is more or less understood that the Federal Government has the responsibility for providing permanent disposition of high-level waste.

Consequently, the waste management strategy over the past several decades has been toothless and has been subject to transient whims and fancies of passing administrations. In particular, the policies of the last administration tended to institutionalize and perpetuate the issue rather than resolve it. These policies emphasized endless examination of options, endless R. & D., and open-ended schedules.

Your proposed legislation, Mr. Chairman, would tend to clarify the partitioning of responsibilities between the Federal Government and licensees who generate waste in the nuclear power system. We strongly support it for that reason.

Your proposed legislation also has a very heavy schedule thrust. Anyone connected with the waste management issue over the years in the executive branch, Congress, industry, and the utilities has felt an urgent need for a firm and clear schedule for reaching closure on the technological and institutional issues—and for making that solution operative.

We want to deploy the solution on a predictable schedule and not perpetuate the issue. Your proposed legislation lays down a schedule and an institutional process for doing that and we support it.

We do have minor suggestions to make on the schedule but they are of a minor technical nature and we will coordinate with staff on that input.

Another area of uncertainty which your bill addresses is the role of State governments in siting waste management facilities. We oppose the prospect of a unilateral veto by State governments on siting waste management facilities. Waste management is a national problem, and what is needed is a rational and fair process through which the concerns of States can be resolved in a national political forum.

Your proposed bill provides such a procedure, and we support it.

Mr. Chairman, this concludes my opening remarks. My colleagues and I will be happy to answer whatever questions you may have.

[The prepared statement of Dr. Brewer follows:]

STATEMENT OF SHELBY T. BREWER
ASSISTANT SECRETARY FOR NUCLEAR ENERGY
U.S. DEPARTMENT OF ENERGY
BEFORE THE COMMITTEES ON
ENERGY AND NATURAL RESOURCES AND
ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE
OCTOBER 6, 1981

Nuclear Waste Management Policy

I am pleased to appear before you today to discuss our nuclear waste management policy and the need for related legislation, and to comment on S. 1662. I would like first to express our appreciation for the interest and support of these two committees and other committees in the Congress in proposing a comprehensive approach toward nuclear waste management. The concern with which this issue is viewed is reflected in your bill, as well as in the numerous other pieces of legislation which have been submitted this session. We wish to work closely with the Congress to ensure that legislation which is ultimately passed will be consistent with the policy framework that I shall outline and the other legislative initiatives that we believe will be required.

Current Nuclear Waste Management Program

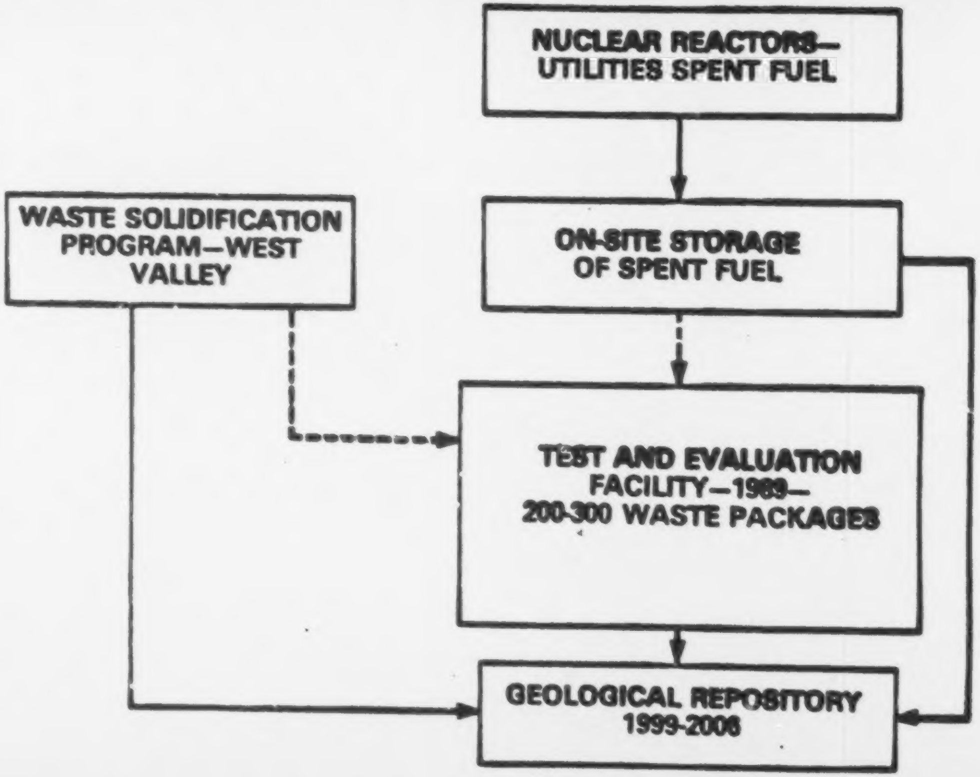
Permanent Geological Repository and Test and Evaluation (T&E) Facility

I will now review the current waste management program as it exists. The current Department of Energy program will identify three specific geological repository sites at which construction of exploratory shafts to depth will begin by 1983, to be completed by 1985. The three locations will likely be: in basalt flows on the Hanford site; in welded volcanic tuff on the Nevada test site;

and, in a salt formation site to be determined by 1983. Following examination of the three sites at depth, selection of one of the three sites will be proposed for the development of a Test and Evaluation (T&E) Facility. This is currently scheduled for 1985. Parallel work on detailed site characterizations, necessary before a decision can be made on determining the site or sites to be used for a full-scale licensed repository, will continue at all three sites. A license application for the first repository is scheduled to be submitted to NRC by 1988, with operation to begin in the 1999-2006 timeframe. As we testified earlier this year, the repository would be capable of accepting spent fuel in addition to solidified high-level waste.

The T&E Facility will develop waste emplacement technology. The Facility will be designed for the placement of up to two to three hundred packages of high-level waste. The package will incorporate multiple barriers, will be completely monitored, and will be designed for retrieval. Methods for handling large quantities of waste packages will be developed. This technology will be used in the licensing process whether or not the first waste repository is located at the site of the T&E Facility. Further, it will demonstrate on a practical basis that high-level radioactive wastes can be handled and stored safely. If estimates are correct, radioactive materials could be emplaced in the T&E facility by 1989. Figure 1 depicts the current waste management program.

FIGURE 1
EXISTING WASTE MANAGEMENT PROGRAM


NUCLEAR REACTORS—UTILITIES SPENT FUEL
ON-SITE STORAGE OF SPENT FUEL
WASTE SOLIDIFICATION PROGRAM—WEST VALLEY
TEST AND EVALUATION FACILITY—1989—200-300 WASTE PACKAGES
GEOLOGICAL REPOSITORY 1999-2006

Comments on S. 1622

Mr. Chairman, I would now like to comment briefly on S. 1662. Since the bill was introduced very recently we have not been able to complete the careful evaluation that this legislation deserves. Consequently, we are unable to offer extensive, detailed comments at this time. We would, however, be glad to submit such comments after further analysis has been completed. We can state, however, that our initial review indicates that large areas of agreement exist. Your carefully considered approach to the disposition of existing and future inventories of nuclear wastes indicates a basic compatibility with the policies and strategies that we are proposing.

There are several areas that the Department feels should be addressed in any comprehensive waste management bill. First, experience has shown us that there is a need for a formal mechanism to resolve differences that may arise between DOE and State authorities over the siting of high-level waste repositories. We have worked continuously to develop a program of consultation and cooperation with State authorities, but eventually a formal resolution of possible State objections to the siting of a repository will be required. The proposed bill provides a mechanism, and our only comment at this time is that we believe that Congress should have the opportunity to sustain a State's or Tribal Council's objection by Joint Resolution.

Second, we believe clear authority is needed for the Federal Government to collect revenues and for the Secretary of Energy to expend funds as needed to meet early program financing requirements. The proposed bill contains several provisions in this area.

Finally, it should be clearly established that the Department will have authority to take title to high-level waste and spent fuel, and collect fees for disposal of such waste. This legislation provides the needed clarification.

In general, many provisions of the bill are very similar to programmatic initiatives which are well underway. Others provide needed clarification of authority. Although not totally consistent with current Administration policy, we acknowledge that the bill would provide a quantum step forward in providing program and policy stability.

The principal area of difference involves the provision for Federal interim away-from-reactor storage of spent fuel. While we acknowledge that this is probably the most immediately pressing concern of utilities operating nuclear reactors, we feel that this is a service more appropriately provided by the private sector. Provisions in S. 1662 for additional At-Reactor licensing are consistent with the Administration's approach in this area.

We would be less than candid if we did not point out that the bill would require completion of activities within timeframes that are substantially shorter than those to which the waste program is currently geared. We will examine these new targets closely, with the objective of seeing what we can do to meet them.

This completes my statement. I will be pleased to attempt to answer any questions you may have at this time.

The **Chairman**. Thank you very much, Mr. Secretary. I want to welcome to the committee Senator Stennis who has a very great interest in this issue. He has informed me he wants to listen to the testimony and I would invite him to participate in questioning if he desires to do so.

Senator **Stennis**. Thank you very much, Mr. Chairman.

The **Chairman**. I appreciate the statement that has been made. I agree with the statement with respect to the absolute State veto. That is a very difficult pill for me to swallow. I do not like to abrogate the right of a State to make decisions with respect to what happens within a State, but I think we have all come to the conclusion that if an individual State standing in isolation with respect to a single facility were permitted to exercise a veto by whatever means, the political pressures would be generated to require the exercise of that veto right.

We have attempted in meeting that issue to deal with the question of consultation and concurrence, a phrase that has now gained some currency in the discussion, and perhaps we should give Senator Domenici some credit for having advanced that concept.

Before going into questions, I would like to note that my colleague from Idaho, Senator Symms, is present today. He has more than a passing interest in this issue as well as I do.

Senator, do you have a statement you wish to make at this time?

STATEMENT OF HON. STEVEN D. SYMMS, A U.S. SENATOR FROM THE STATE OF IDAHO

Senator **Symms**. Mr. Chairman, I appreciate the chance to be here. I think this legislation is urgently needed to assure the country's nuclear power industry so we can continue to supply vitally needed electricity in a safe and reliable manner.

I am also happy to be a cosponsor of your bill. I believe this bill is one of the most comprehensive ever considered by the Congress. Its provisions address every facet of the nuclear waste program. I would like to compliment you for the leadership to get this ball rolling, so to speak, to get started.

It includes interim long-term storage as well as geological disposal. This bill will insure waste will be handled and disposed of in a safe and environmentally sound manner and the States can fully participate in each step of the process.

Our bill provides for full cost recovery for those who benefit from nuclear-generated electricity.

I sincerely hope these proceedings will at last result in a national policy at least on nuclear waste. In my opinion the technological aspect of this problem has long been understood. It is now time for us to develop the proper institutional controls so we can look forward to continued development of the important source of electricity. I think it is a political problem and not a technological problem.

I would like to encourage those of you in the administration to really put your shoulder to the wheel and work with the chairman of the Energy Committee and the Senate and the like people in the other body so we can actually accomplish this.

It is unfortunate that a country that has all our technological wherewithal to allow our political inability to go ahead and solve the problem, make a decision and try to work out the best compromise possible and then move forward. There are several ways in my opinion we can safely control and store nuclear waste interim or long term.

I would like to see us move forward. I am happy to be a cosponsor of the bill. Mr. Chairman, I compliment you for bringing this forward. Without this important linchpin in the overall process, we really cannot have a nuclear option. We have to have a way to store this nuclear waste. We have the technological capability to do it and now we need to get on with it.

Thank you.

The CHAIRMAN. Thank you, Senator.

I suppose there are aspects of exploitation of a sad event in any comments which will be made with respect to what has happened in Egypt today. Sometime and somehow this Nation must learn that we are extremely vulnerable to what may happen in other areas of the world and those events that occur even in a nonenergy nation such as Egypt have a profound impact upon the energy supply availability for all of the free world.

In the face of that uncertainty, I do not know how many times we have to be reminded that we must develop an energy policy to reduce dependence upon imported energy. This bill in my judgment is one of those elements. We cannot exercise the nuclear option in this country unless we have radioactive waste disposal programs.

I think it is a matter of extreme urgency. As many in this room know, the latest news reports indicate President Sadat has died. That is not confirmed. Whether he has or has not, the vulnerability to events in unstable areas of the world is so great as to underscore the absolute urgency of dealing with an energy problem, whether it is an immediate crisis today, it can become a crisis instantaneously.

I despair when people talk of oil gluts and gas bubbles and indicate somehow that problem is now safely behind us. If, as some people have suggested, the attack on the President of Egypt was by a radical regime in a country next to his, we should recognize that the free world is dependent upon the oil that comes from that country. Our policies are not free enough to make decisions we may wish to make with respect to continuing to deal with that country concerning the availability of that oil.

Neither we nor our allies can ignore what is happening today. I say that in infinite sadness over what has happened in Egypt regardless of whether those press reports are true. It is a tragic day for us and not just for the people of Egypt. It should strengthen our determination to do something about an energy program in this country including this element.

I am very pleased the administration has indicated support for the basic thrust of the legislation before us and the determination to move forward on a predictable, finite and I hope expedited process and schedule. I appreciate that element of your statement, Mr. Secretary.

I wonder if you could tell us when you would have a detailed analysis of S. 1662? We are anxious to move forward with this legislation.

Dr. BREWER. We are preparing it now, in fact.[1]

The CHAIRMAN. Very good. While a lot of thought has gone into drafting this energy legislation, there is no conception that it is perfect. You point to areas that need improvement and we will certainly welcome those ideas.

How many years has DOE been evaluating potential nuclear waste disposal sites?

Dr. BREWER. Probably since the early 1960's.

The CHAIRMAN. Nearly 20 years. In how many States?

Mr. MEYERS. Right now in about 30 States, Senator.

The CHAIRMAN. You have only missed 18. How many sites have been evaluated?

Mr. MEYERS. That is hard to say. In the gulf coast we started out with perhaps 250 salt domes and eventually narrowed that down to 4. We look at general areas. We just started a survey last year in the Eastern part of the United States on the granite formations ranging from Georgia to Maine and across the Canadian shield. The initial studies just tell us where granite is in those States.

The next part of the survey is to narrow it down to specific areas and the last part is to get site specific.

The CHAIRMAN. It is fair to say that over the last nearly 20 years we have looked at least at 30 States and not only in the United States but outside the United States. We have looked at dozens of opportunities and eliminated hundreds. We have narrowed it down to a few candidate sites, but those sites are still located in more than one State and more than one candidate site.

Mr. MEYERS. That is true, sir.

The CHAIRMAN. How many Federal agencies have been involved? How many have you cooperated with?

Dr. BREWER. The Department of Energy and its predecessor agencies have worked with four major agencies: USGS, EPA, NRC, DOT.

The CHAIRMAN. Is the timetable for having an application for construction authorization for a repository in 1988 feasible?

Dr. BREWER. Yes, sir.

The CHAIRMAN. Can the site recommendations be made as called for in S. 1662?

Dr. BREWER. In 1985, yes, sir.

The CHAIRMAN. In your statement you identify two likely sites to be chosen for site characterization including exploratory shafts. How soon could such work begin?

Dr. BREWER. The work is currently scheduled to begin in calendar 1983 for the shafts, and a decision on the T. & E. site in 1985. I am looking at options for accelerating that schedule.

The Code of Federal Regulations, title 10, part 60, requires for a licensed facility that three sites in two media be examined. That is for a licensed facility. The test and evaluation facility is not a licensed facility in a strictly commercial sense. It is not bound by 10 CFR 60.

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[1] See Appendix IV.

I would hope we could accelerate the decision on the site for the T. & E. facility.

The CHAIRMAN. What sort of role have the host States or affected Indian tribes played so far with respect to these two or three possible sites? Have they been fully involved in consultation? Have they had the opportunity to express their views and have they done so?

Mr. MEYERS. Absolutely, Senator, at the very early stages. I can cite the granite work we started last year. We contacted the Governor's office in each of those States to ask for a designated representative. As soon as we have a designated representative we start immediately working with the States at the very earliest opportunity.

As we progress in the States and become more site specific, the arrangements become somewhat more formal. Frequently the State designates a group consisting of legislative and executive branch personnel within the State. We consult with them on a continuing basis. We provide them with our plans. We address their comments and try very hard to be responsive to their needs, everything short of a veto.

The CHAIRMAN. In the absence of specific legislation dealing with the question of consultation with the States, do you feel constrained or do you feel you can consult with them fully? Are there any statutory changes necessary to enable you to consult fully with the States?

Mr. MEYERS. We clearly have been consulting with them fully. In my dealings with the States, I think the States would prefer to have that particular arrangement mandated by law. They are concerned because we say it is a matter of policy and thus far the policy of succeeding administrations has worked to the benefit of the States to allow us to continue the consultation.

I think the States would be much more comfortable if their role was mandated by law.

The CHAIRMAN. In March of 1980 the DOE reported that approximately 755 metric tons of storage capacity will be needed in 1985 to maintain full core reserves at reactors. This was used as the justification for a federally operated away-from-reactor storage capability.

In March of 1981 the DOE estimated no capacity would be needed in 1985. What has changed within that year to so drastically change those estimates?

Mr. MEYERS. As you probably know, Senator, we do analyses on a continuing basis. We get the information from the utilities. In the early stages of the surveys, all the reactor powerplants had not compacted their storage facilities. The later figures indicate that most of the utilities have provided for densification of their existing storage facilities, and we believe the latter figures are getting to the point where there will be no other option but to provide additional storage capacity either in another pool of the utility system or building a new pool on the site.

It is our estimation at this time they have essentially run out of the ability to compact further the existing pools.

The CHAIRMAN. They will not need any further storage in 1985 or before 1985?

Mr. **Meyers**. We have several cases, and it depends upon the assumptions you have made. On the basis of no transfer among the utility system and maintaining full core reserve capacity which is what we call the planning base, there should be no shortfall in 1985.

The **Chairman**. Is that assuming no transfer?

Mr. **Meyers**. That is right.

The **Chairman**. Every operating reactor has within its own storage capability a sufficient reserve capacity to operate through 1985?

Mr. **Meyers**. That is our estimate now.

Dr. **Brewer**. We do have a problem in 1986 and thereafter, and it is a growing problem.

The **Chairman**. I am a little surprised at that estimate. We were assured repeatedly and I made statements based upon those assurances that we were simply running out in 1983. Now I am told we do not have to worry until 1986.

Mr. **Meyers**. That was an earlier estimate based upon the information we had at the time. When we say 1985, that is assuming the license applications the utilities have into the NRC for reracking are approved.

The **Chairman**. It does require approval. Does it require amendment of their license?

Mr. **Meyers**. Yes, sir.

The **Chairman**. Does it require any transshipment of materials?

Mr. **Meyers**. No. These estimates on the planning base assume there will not be transshipment. If you assume that a particular utility which has the capacity to move from a reactor that is operating to one that is newly built and has no spent fuel being discharged from that reactor plant, and the larger utilities do have that capability—if you assume the requirement for full core reserve capacity which is not required by the NRC but utilities like to be able to have the capacity to discharge the core, then one has a little more flexibility beyond 1986.

The **Chairman**. It does make some sense, does it not, before you start up a reactor to know you are going to be able to recharge the core?

Mr. **Meyers**. It does to me.

The **Chairman**. It would seem to me to be a little foolish for a utility to start out with a reactor and put radioactive elements in it without any assurance that when they have to recharge that core that they will be able to.

Does the lower, more recent estimate include storage plans not presently under consideration by the utilities?

Mr. **Meyers**. Yes.

The **Chairman**. That is a very optimistic estimate of what can be done.

Mr. **Meyers**. Some of the utilities have said they have difficulty with maximum reracking. We had to make the estimate based upon something that was well understood.

The **Chairman**. You are going a little beyond what the utilities have said when you make that estimate, you did not just take what the utilities presented to you?

Mr. **Meyers**. We assumed they could get maximum reracking of their existing pools and they would.

The **Chairman**. In spite of the fact that in some instances they do not plan to.

Mr. **Meyers**. The problem is getting the license amendment. There is some uncertainty there although the NRC has been issuing those.

The **Chairman**. How long does it take to get an amendment through the NRC? What has our experience been?

Mr. **Meyers**. We used to be able to get them through in about 4 or 5 months and more recent ones have taken about a year.

The **Chairman**. In every instance?

Mr. **Meyers**. I would not say in every instance.

The **Chairman**. It would depend upon whether anybody files an objection?

Mr. **Meyers**. Yes, whether or not it is contested.

The **Chairman**. If someone files an objection, how long would it take?

Mr. **Meyers**. I do not know. You will have to ask the NRC.

The **Chairman**. It takes $25 and a copying machine to file an objection, does it not?

Mr. **Meyers**. I do not know, Senator.

The **Chairman**. It does not take much talent. All you have to do is copy what someone else has already done. Past NRC actions have indicated they want to provide some intervenor funding to make sure the issues are contested fully and ventilated fully even if they do not have the $25; they might get it from the NRC.

I only mention that because it seems to me if we make policy on the basis of an assurance there will be no problem, then we are operating fat, dumb and happy. The past experience would indicate there will be some slippage, at least once or twice here or there. I am a little concerned we are developing policy based on the assumption that everything will run well and everything will be optimum.

We make no allowance for any slippage or any error or any difficulty. I think past operating experience would indicate there will be at least some difficulty somewhere, some time and in one of these applications.

What are the outyear costs of the DOE's nuclear waste program?

Mr. **Meyers**. The program is rather extensive. Do you mean the repository itself?

The **Chairman**. Yes.

Mr. **Meyers**. We expect the construction and operation of the repository for 20 years will cost about $4.8 billion.

The **Chairman**. That is a 20-year operating cost?

Mr. **Meyers**. Yes, plus the cost of construction.

The **Chairman**. That is for one repository?

Mr. **Meyers**. Yes, sir. It would have the capacity of some 80,000 metric tons of waste or spent fuel.

The **Chairman**. Is that the full cost of the program contemplated in S. 1662? What would be the full operating cost or full outyear cost of the program contemplated in S. 1662?

Dr. **Brewer**. We will price the legislation out, Senator. We have not yet done that.

The **Chairman**. Would you provide it for the committee?

Dr. **Brewer**. Yes, sir.

[Subsequent to the hearings Dr. Brewer supplied the following:]

The attached table projects the revenue, cost, and surplus funds projected as a result of passage of S. 1662.

Attachment

Cash Flow Table

Fiscal Year	Revenues*	Assumed Escalation over 1982	Annual Costs ** (Escalated $) S.1662	Annual Surplus (Escalated $) S.1662
1982	379	-	237	142
1983	438	1.07	414	24
1984	501	1.134	482	19
1985	549	1.188	519	30
1986	627	1.238	673	-46
1987	659	1.29	662	-3
1988	690	1.34	410	280
1989	712	1.39	425	287
1990	727	1.44	622	105
1991	737	1.49	752	-15
1992	748	1.54	756	-8
1993	770	1.59	830	-60
1994	786	1.64	605	181
1995	786	1.69	492***	294
1996	801	1.74	524	277
1997	843	1.79	915	-72
1998	870	1.84	995	-125
1999	912	1.89	1060	-148
2000	949	1.94	1311	-362
TOTAL	13484		12684	800

* Assumes a 60% availability factor using the latest nuclear generating capacity projection from ORNL data base. A 70% availability increases revenues 14% or $2.2 billion through the year 2000.

The **Chairman**. What will be the revenues of the mandatory fee on nuclear electricity?

Dr. **Brewer**. The one mil per kilowatt-hour provision in the bill is quite sufficient.

The **Chairman**. That would cover all the operating costs of the program envisioned in the bill?

Dr. **Brewer**. Yes, sir.

The **Chairman**. Would there be any need for direct appropriations or borrowing authority from the Treasury to be paid back from the special reserve?

Dr. **Brewer**. There is some question about the very near term. Your bill provides for previous year appropriations to be put into the fund, that is, unexpended appropriations, and then borrowing authority from the Treasury, and then the 1 mil per kilowatt-hour revenue stream.

We are not certain exactly what fiscal years 1983 and 1984 would look like.

The **Chairman**. Will you be able to give us that estimate?

Dr. **Brewer**. Yes, sir.

The **Chairman**. Are there any precedents for such a fee?

Dr. **Brewer**. I will have to answer that for the record.

[Subsequent to the hearings Dr. Brewer supplied the following:]

We are unaware of any precedent for a Federally-mandated surcharge on electricity rates.

The **Chairman**. Is it your opinion the public utility commissions will automatically pass such a fee through to the consumer?

Dr. **Brewer**. We have asked a number of our nuclear utilities. The answer is yes. They feel they will. In the waste management area they are waiting for some Federal schedule for collection of fees. They are in no man's land at the present time. They have no way of ascertaining the appropriate passthrough. A Federal schedule of fees would be most helpful.

The **Chairman**. In determining a possible site, does the DOE take into account such factors as population density?

Dr. **Brewer**. Yes, sir.

The **Chairman**. What weight is that given? Is that a major consideration or just another one of the factors on a long list of factors?

Dr. **Brewer**. It is one of many factors, Senator.

The **Chairman**. Does population density automatically take a site out of consideration?

Dr. **Brewer**. No.

The **Chairman**. Have any States refused to allow DOE to survey for potential sites?

Mr. **Meyers**. Yes, sir.

The **Chairman**. In how many instances has DOE agreed to refrain from site surveys within a State?

Mr. **Meyers**. This happened under past administrations. I know of two instances where we were asked not to conduct surveys and we did not.

The **Chairman** Would the provisions for a national site survey in this bill negate those agreements?

Mr. **Meyers**. I believe so.

The **Chairman** You would be free to make an evaluation wherever in your judgment based on your criteria would lead you to make an evaluation?

Mr. **Meyers**. That is an example of why legislation helps. It is a matter of policy to listen to the States and they are concerned if you change the policy, you will not listen. If you pass it into law it is very clear what the role of the States is.

The **Chairman**. It does call for extensive consultation with the States at every stage which would include consultation before making surveys. Is that correct?

Mr. **Meyers**. Absolutely.

The **Chairman**. What is the administration's strategy for closing the back end of the fuel cycle and how does that differ from the previous administration?

Dr. **Brewer**. As you know, it differs markedly. First, we feel reprocessing is key to the back end of the fuel cycle. The ultimate end point is the geological repository. We feel the reprocessing is desirable for three or four reasons. It would decongest the spent fuel congestion you referred to earlier. It would recover the fissile material, the residual energy values of the fuel. It would place the waste in what we consider to be a more appropriate form.

Our strategy has three components: First, continue and accelerate the geological repository program; encourage reprocessing to occur as a private sector venture; and, where we can, build in flexibility in the entire back end of the fuel cycle. This could be achieved by a retrievable storage facility as an integral part of the reprocessing plant similar to the one at the French AVM plant.

The **Chairman**. What role can industry play in reprocessing?

Dr. **Brewer**. Industry must play the central role. As you know, the administration's policy is that reprocessing is appropriately a private sector responsibility. We are now seeking ways of improving the regulatory and policy climate, and defining and achieving that climate in which reprocessing could occur as a private sector activity.

The **Chairman**. What are the risks involved in commercial reprocessing? There is a great debate going on and not only in this country but around the world about the risks of the materials produced in reprocessing and the security of those materials. There are a great many people that are skeptical about whether it could be handled in the commercial sector because of the risks.

Dr. **Brewer**. With the appropriate safeguards, certainly we can achieve domestic reprocessing that does not add to proliferation risks. I do not wish to comment on reprocessing elsewhere. Reprocessing in this country, I do not believe, adds to the risk of proliferation or new entries into the weapons community abroad.

There are enormous financial and institutional risks on the private side. As you know, commercial reprocessing has been attempted three times in this country: at West Valley, Morris, and at Barnwell. All three have failed. In two of those cases it failed for technological reasons, as well as institutional, policy instability, regulatory instability, and the like.

We must stabilize our developmental policy and must stabilize our regulatory policy or it simply will not occur.

The **Chairman**. What are the incentives for reprocessing?

Dr. **Brewer**. There are three principal incentives. One is to recover the fissile material, plutonium and uranium. We need the plutonium to carry out the breeder program and indeed to deploy the breeder when the economics are right for that.

You will recover the uranium, and the enriched uranium left in the fuel can be recycled for further use in light water reactors. You also decongest the spent fuel congestion.

In our view it places the ultimate waste in a more stable form.

The **Chairman**. Are those incentives sufficient to lead to commercial activity?

Dr. **Brewer**. Those are national incentives. They are not the sort of incentives a private corporation doing bottom line accounting would account for. They do constitute national incentives.

The **Chairman**. I would agree they are sufficient for national incentives. The reason I asked is it seems to me if we segment it and look at a specific given utility that we may find those incentives are not sufficient for them to individually undertake.

I am mindful of the comment you made and the truth of it. The uncertainties of commercial reprocessing have led to the demise of the industry and certainly those who are still holding the sack at Barnwell feel they are holding the sack. At least that is what they tell me and I do not blame them for feeling that way because of governmental policy.

How can the Government help eliminate the uncertainties and therefore perhaps enhance the possibility for private sector involvement in reprocessing?

Dr. **Brewer**. It would help if the Federal Government could specify with some clarity the appropriate waste form and the criteria for Government acceptance of high level waste. A policy as to the value of the residual fissile value of the fuel would be useful. We must stabilize the policy, both regulatory and developmental policy. We have to make it clear as well when and at what point in the fuel cycle we will accept the waste, and when and how and what. Those are the major elements.

The **Chairman**. Would commercial reprocessing allow utilities to dispose of their spent fuel at an earlier date than if there were not reprocessing and the utilities had to wait for a permanent geological repository?

Dr. **Brewer**. Yes, sir. If a reprocessing plant of say 1,500 metric tons per year were to come on line in 1990 and if that reprocessing plant were to have a storage capacity of 2,000 metric tons which could be used even sooner, we could avoid the 1986 spent fuel storage crunch referred to earlier.

The separations plant could stay ahead of the problem until approximately the year 2000.

The **Chairman**. On page 2 of your statement you outline the examination of three sites at depth, selection of a site and parallel work on site characterizations and license applications.

How would this compare to provisions of S. 1662?

Dr. **Brewer**. Your bill calls for an NRC decision in 1988. The current program as outlined in my testimony calls for an application for a license for the first repository in 1988. Your bill is significantly accelerating the current program.

The **Chairman**. On the bottom of page 2 you outline the development of an emplacement technology. Can that program as you have outlined it fit within the context of S. 1662, title IX?

Dr. **Brewer**. There is one timing question. The proposed test and evaluation facility would be coming on line the moment a license award was being made for the large repository. Therefore, in my view to assure the use and validity of the test and evaluation facility, its schedule should be accelerated. We are seeking ways of doing that.

The **Chairman**. On the graph, you make note of the waste solidification program at West Valley. What is the status of the cooperative agreement at this time?

Mr. **Meyers**. Amendments have been negotiated and signed. On September 18 the Secretary of Energy and the chairman of the New York Energy Research and Development Authority signed the amendments to the agreement.

The **Chairman**. What is the status of licensing on that project?

Mr. **Meyers**. The NRC has issued a licensing amendment that will permit the licensee to transfer the site to DOE.

The **Chairman**. That will permit you to operate?

Mr. **Meyers**. The amendment does not say you must be there. It says you can be there. The current operator and New York ERDA must transfer the site to us.

The **Chairman**. The current amendment of the license would permit you to do what you intend to do at that site?

Mr. **Meyers**. Yes, sir.

The **Chairman**. What is the current schedule and cost for that project?

Mr. **Meyers**. It is difficult to say with regard to the cost. I believe the agreement has a cost in there of $280 million approximately. We have not been on site. We have not done any detailed analysis. We have not developed any conceptual designs. Until we do that, it is foolhardy to just guess at a cost. It is going to be one of our first activities when we do get on site, to develop that base line cost estimate.

We are currently planning to be putting out logs of solidified waste starting in 1988.

The **Chairman**. On page 3 you talk about detailed comments of S. 1662. As I understand it, you have most of the analyses done and you will be able to provide those comments to us promptly?

Dr. **Brewer**. Yes, sir.

The **Chairman**. In the next paragraph you make some reference to the mechanisms by which we would resolve State-Federal conflict. You have suggested Congress should have the opportunity to sustain a State's or tribal council's objection by joint resolution. Aside from that joint resolution mechanism, do you support the consultation process as outlined in the bill?

Dr. **Brewer**. Yes, sir.

The **Chairman**. Do you agree with the general approach of a 1-mil levy on the utilities producing electrical energy as a means of financing this program?

Dr. **Brewer**. Yes, sir.

The **Chairman**. I think you indicated that should be a sufficient amount of money over a period of time although you are not certain about the timing of the expenditures related to the acquisition of the revenues.

Dr. **Brewer**. Yes, sir. We are doing a cash flow analysis which begins in fiscal year 1983 and runs out through the year 2000.

The **Chairman**. On page 4 you indicate you would be less than candid if you did not point out this bill would require completion of activities within time frames that are substantially shorter than those to which the waste program is currently geared.

Can we not go faster if we streamline the regulatory and legal procedures and meet the time frames set forth in S. 1662?

Mr. **Brewer**. To improve the time frame and schedule as set forth in S. 1662? I would hesitate to give you a negative answer, Senator.

The **Chairman**. I am glad you would.

Will it require some streamlining of the regulatory procedures? Do we have to make changes in order to meet this deadline or is this an overly optimistic deadline without changes?

Dr. **Brewer**. If you consider the way the Commission has operated in the past, I believe what you say is correct, it would be difficult to accelerate the schedule.

The **Chairman**. There are a number of suggestions. I would like to note the presence of Senator Hart who serves on our companion Committee of Environment and Public Works which is also involved in this legislation and hearing process. Senator Simpson is present and is chairman of that subcommittee. We welcome their presence and participation in these hearings.

Senator Stennis, did you have any questions?

Senator **Stennis**. Thank you, not at this time.

The **Chairman**. Senator Hart?

Senator **Hart**. Thank you, Mr. Chairman. As one who went through the process of trying to legislate a solution to this last year and failing in the House, I think it is very important to congratulate you for joining the two committees together.

Mr. Secretary, on page 3 of your statement, you talk about basic compatibility of the chairman's bill with the policies and strategies we are proposing. On the next page you talk about administration policy.

Where would be the best summary of the current administration's policy on nuclear waste disposal? What document would contain that?

Dr. **Brewer**. Senator, the testimony of Deputy Secretary Kenneth Davis before the Udall committee. I believe it was July 9.

Senator **Hart**. There have been recent reports that the Department of Energy is considering reprocessing commercial spent fuel to make nuclear weapons. Those reports suggest DOE may see reprocessing as a solution in whole or in part to the waste disposal problem.

What comments do you have on those reports and their authenticity?

Dr. **Brewer**. As to reprocessing being an integral part of the waste management system, yes, I believe it is and should be. I cannot speak for the Department on reports using reprocessing as a means of mining the light water reactor plutonium for other than civilian uses.

Senator HART. Who can speak for the Department on that issue?

Dr. BREWER. The Assistant Secretary for Defense Programs.

Senator HART. You are not either equipped or prepared at this time to validate or lay to rest those reports?

Dr. BREWER. No, sir.

Senator HART. Mr. Chairman, I have not had a chance to examine the scope of the hearings. I would encourage you to expand it to include that issue. I think that is an extremely important public policy issue and one a number of us would be very interested in and concerned about.

The CHAIRMAN. Yes.

Senator HART. Mr. Secretary, has the Department selected a method for solidifying and packaging high level waste at this point?

Dr. BREWER. The reference waste form is borosilicate glass. The current plan is to make a decision in 1984 on that and other alternative forms.

Senator HART. What about the packaging of spent reactor fuel?

Dr. BREWER. For disposal?

Senator HART. Yes.

Dr. BREWER. It is our hope we will not dispose of much spent fuel, that we will reprocess the spent fuel and recover its energy values and convert the waste into a solid form for disposal.

Senator HART. Thank you very much. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Symms?

Senator SYMMS. Thank you, Mr. Chairman.

From the questioning, I take it what you are saying is S. 1662 calls for a much more aggressive forward movement of settling the issue than the present plans of DOE.

Dr. BREWER. Yes, sir.

Senator SYMMS. Can you explain why it is not possible to move forward more rapidly? You are talking about the year 2000 to have it all settled.

Dr. BREWER. If you work out the time line arithmetic, in your bill the date is around 1995 for the operation of a commercial repository.

Senator SYMMS. Did you not make the point that DOE has been studying this for some 20 years?

Dr. BREWER. Yes, sir. It has been studied too long. We have looked at an infinite number of options. I believe we are ready to move and should move.

Senator SYMMS. Is there any particular reason why we have to do the testing at all three sites before? Are there not some sites where DOE have bona fide factual evidence they are safe?

Dr. BREWER. The NRC 10 CFR part 60 requires that before a license will be granted for a commercial repository that three alternative sites be examined. It is an NRC requirement.

Senator SYMMS. It is an NRC requirement to select three sites first and then one site from that?

Dr. BREWER. Yes, sir.

Senator SYMMS. Is there any reason technically, other than the legal reason, that it is necessary?

Dr. BREWER. There are some technical uncertainties. I would like Mr. Meyers to address those.

Mr. MEYERS. There are a number of reasons why it takes time. The bill you are proposing does require consultation and coordination and cooperation with the States. It would be difficult to just show up and begin construction while assessing that the site is suitable. The fact that we have made the obligation to work closely with the States is time consuming and I would not discount the time it takes to work closely with the States and accommodate their particular needs.

Additionally, and over and above the requirements of NRC for the three sites, I think it is prudent for us to be looking at several sites since there is no guarantee that once we get to depth that the site will be acceptable at the proposed horizon for disposal.

In the various sites we are looking at, at the Hanford Reservation and the Nevada test site, there are some technical uncertainties that need to be resolved. We do not fully understand the hydrology at the Hanford Reservation. We would not want to say that is a suitable site at this time since if we sink the shaft and find out we have an artesian well, for example, it may get disqualified.

The CHAIRMAN. You would be welcomed if you found an artesian well at Hanford.

Mr. MEYERS. Apparently the geology is such that it is right in the basin. At the Nevada test site there are some uncertainties with regard to past volcanic activity and the various salt sites have some dissolution associated with them.

From a technical point of view one could not now say let's go to this particular place, it is perfectly suitable.

Over and above the requirements of NRC that says you need three sites, from a technical point of view, we should have several under consideration so if one does not pan out you have alternatives to go to.

Senator SYMMS. Am I correct in understanding a great deal of the information is generic and it would apply to any site?

Mr. MEYERS. There is generic information one can get; for example, the thermal behavior of salt. It is important to be site specific when you are saying this is the repository and we have run several types of tests in this geologic environment at depth.

Senator SYMMS. Thank you very much.

The CHAIRMAN. What is the status of the work being done at the Nevada test site now?

Dr. BREWER. There is a facility called Climax at the Nevada test site. There are a number of spent light water reactor fuel elements in place and under testing, and there are also some heater tests.

The CHAIRMAN. Is that something that can be integrated into this program or is it a separate test?

Dr. BREWER. It is integrated into the program.

The CHAIRMAN. Could be integrated if the program goes forward, under S. 1662?

Dr. BREWER. Yes, sir.

The CHAIRMAN. Senator Simpson.

Senator SIMPSON. Thank you, Mr. Chairman.

Let me express my appreciation to the ranking member of the Subcommittee on Nuclear Regulation, Senator Hart, for his continued assistance. I did not have the opportunity to do that yesterday and wanted to particularly express that as we have proceeded under the new majority status conditions of this body. You have been more than helpful as has your staff.

Do you feel the limitations on the test and evaluation facility are appropriate, are they workable, sufficient to assure the site chosen for the test and evaluation facility is preserved for possible later use as a full scale repository which then must be licensed by the NRC?

Dr. **Brewer**. Our plan is to emplace several hundred cannisters of high level waste in the T. & E. facility. I believe S. 1662 limits that to somewhat less than that. The limitation is 40. We believe it should be several hundred cannisters.

Senator **Simpson**. It is 300 under S. 1662.

Dr. **Brewer**. There is no limitation that would bound our expectations.

The **Chairman**. It is obvious we are not going to complete the hearing this morning with the witness list we have. In view of the international circumstances right now, there is a great deal of interest on the part of many to learn what the latest conditions are.

The report has been confirmed that President Sadat was killed. That is understandably distracting the attention of members from the hearing and we do have permission to sit this afternoon.

I would inquire of the witnesses if they find difficulty in returning if we were to recess until 1:30 p.m.

Mr. **Ahearne**. That is fine, Mr. Chairman.

The **Chairman**. Senator Hart.

Senator **Hart**. That is fine.

The **Chairman**. It would be my suggestion that following the completion of the questions by Senator Simpson and whatever further questions Senator Hart may have for Secretary Brewer that we recess until 1:30 p.m.

Thank you very much.

Senator **Simpson**. Let me ask Dr. Brewer if he has any specific comments on the individual elements in the program contained in S. 1662 which, of course, are gaged to lead to the development of the first full-scale repository?

Are there any of these steps that you believe are inappropriate or require modification or change? I would be interested in your comments.

Dr. **Brewer**. I applaud the fast track schedule implicit in S. 1662. There are a number of small matters in the schedule which are of a technical and detailed nature which we will provide specific comments on.[1]

The only large question that we have difficulty with is the provision for getting the President involved in approving sites for characterization.

Senator **Simpson**. You do have a problem with that?

Dr. **Brewer**. To us it seems to be an unneeded step.

Senator **Simpson**. What would you suggest as an alternative, no step there or a different step?

Dr. **Brewer**. The Secretary of Energy could identify the candidate sites for characterization, coordinate with the Governors, do the characterization, make a decision or recommendation to the

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[1] See app. IV.

President on one to be licensed as a commercial repository and then have the congressional forum rule on any State objection.

It is adding the involvement of the President in the initiation of site characterization that we do not see adds anything to the process except 6 months.

Senator SIMPSON. We will pursue that in the hearing process. You point out the principal area of difference between S. 1662 and the administration's present nuclear waste policy is in the area of interim fuel storage. I think you stated the administration's position is the additional spent fuel storage capacity is more appropriately provided by the private sector.

Are you confident utilities can reasonably be expected to expand their onsite storage capabilities sufficiently and in a timely manner so as to guarantee that no nuclear facility powerplant would lose the full core reserve capacity say through the next decade?

Dr. BREWER. We have identified a problem occurring around 1986, should no further storage be available—an unfilled storage requirement. The position of the administration is, storage of spent fuel is a private sector responsibility. If you consider something like well over $100 billion has been invested in nuclear powerplants in this country, the investment of something like half a billion dollars for interim storage is not an intolerable burden on the private sector.

Senator SIMPSON. There is this funding mechanism under S. 1662 which makes it extraordinarily unique and maybe one of the reasons hopefully it has a good chance of approval and acceptance.

Does the administration support this funding mechanism which includes the mandatory fee on the nuclear power generation as stated in S. 1662? I would like your view on that.

Dr. BREWER. Senator, we support it with enthusiasm. The mechanism ultimately gets the program off the budget and off the tax base. There are perhaps some cash flow problems in the near term as we roll into this regime. The provision in the bill burdens the cost to the beneficiaries of nuclear power and that is appropriate.

Senator SIMPSON. The limitation of total away from reactor storage capacity that the DOE could acquire under S. 1662 is 2,800 metric tons. That was the amount of additional spent fuel storage capacity that NRC had identified as being necessary in their final generic environmental impact statement on spent fuel storage.

Assuming the completion of onsite expansions then underway and assuming spent fuel transshipment within the utility system for the year 1990; I believe your estimates show substantially less spent fuel capacity being necessary in 1990 although the Department's estimates made last year indicated that substantially more than 2,800 metric tons of capacity would be needed in 1990.

I would like to know the reason for that rather widely fluctuating DOE estimate from last year to this and where specifically you differ on the NRC estimates as to the 2,800-ton figure?

Dr. BREWER. Senator, we will review our estimates in detail with NRC. Our figures show rounding off to 22,000-metric-ton overage in the year 2000. Was that your reference?

Senator SIMPSON. What was the figure?

Dr. BREWER. The 21,860 metric tons of new storage requirement in the year 2000. Our 1990 figures are 2,900 metric tons of uranium requiring additional storage capacity.

Senator SIMPSON. What are you referring to for the 21,000?

Dr. BREWER. The 21,860 tons requiring new storage capacity in the year 2000 over and above what now can be covered assuming no transshimpent and current utility plans for pool capacity increases. The numbers are 16,010 metric tons in the year 2000 and 1,800 metric tons in the year 1990 according to our planning base which assumes no transshipment and pool capacities are increased to the maximum. Our third case allows intrautility transshipment and pool capacities to be increased to the maximum. The spent fuel requirements for this case are 13,640 metric tons in 2000 and 860 in 1990.

Senator SIMPSON. With a projection in 1990 of what?

Dr. BREWER. 2,900 metric tons.

Senator SIMPSON. What was the reason for the fluctuations in estimates from last year to this year?

Mr. MEYERS. The utilities changing plans with regard to how much they can maximize their existing storage capacity. We get the information from the utilities. Each year they have been able to get license amendments to allow their existing pools to be densified.

Senator HART. Would the Senator yield for one question?

Senator SIMPSON. Indeed.

Senator HART. Mr. Secretary, you have talked about extracting the energy value of spent fuel and I think my understanding of what that means is plutonium. The question is valued to whom.

We had no breeder reactors except one that will not be completed for many years if at all. That is still a public policy debate. Even if it were, that single reprocessing plant, to my understanding, could not begin to use all the plutonium from all spent fuels.

It seems to me what you are saying is you want to delay waste disposal until breeders as a type proliferate throughout the country after the year 2000 which is doubtful or we are going to store plutonium indefinitely.

Which is it?

Dr. BREWER. Our reference plan is ultimately to complete the development of the breeder reactor system and at such time as the economics warrant to deploy it. To do so requires plutonium inventory to start up the breeder economy, in fact breeder inventory to complete the breeder R.D. & D. program.

Senator HART. How much plutonium, if we reprocessed all the wastes we have now, how many breeder reactors would that fuel take, how many Clinch River's are we talking about?

Dr. BREWER. Senator, I will have to answer that for the record. It is several, more than one certainly.

[Subsequent to the hearings Dr. Brewer supplied the following:]

There are about 50 tons of plutonium in spent fuel inventories in the United States. If reprocessed, this 50 ton of plutonium is sufficient to supply about four "Clinch river" reactors for initial leaching. We do not, however, plan to build additional breeders the size of the Clinch River breeder. For purposes of comparison, that 50 ton figure is sufficient to supply initial loading and eight to nine years of operation for two 1,000 MWe breeder reactors.

Senator **Hart**. Does anyone here know how many that is?

[No response.]

Senator **Hart**. In the meantime you still have a 20-year delay with a lot of plutonium sitting around.

Dr. **Brewer**. The plutonium would be stockpiled.

Senator **Hart**. Sitting around.

Dr. **Brewer**. Safeguarded.

Senator **Hart**. One would hope. Thank you.

Senator **Simpson**. Mr. Brewer, the figures you present are the very reason we want to get with it. You have effectively pointed out about a tenfold increase between 1990 and 2000 on spent fuel and storage capacity. That is extraordinary over a 10-year span over a tenfold increase.

What are your views on procedures to expedite the approval of additional onsite spent fuel storage capacity at nuclear powerplants? Do you believe those procedures are appropriate and necessary to carry out the interim spent fuel policies that are contained in S. 1662?

Mr. **Meyers**. Yes. We think the procedures outlined in the bill would help accelerate the licensing of new storage capacity or expansion.

Senator **Simpson**. Let me ask one more question so we may take a recess and return at 1:30 p.m. I certainly apologize for my tardiness this morning dealing with other matters in the committee.

Your testimony states the Department believes the passage of a joint resolution by the Congress should be required to sustain the objections of an affected State or Indian tribe to a proposed facility.

Why do you believe the passage of a joint resolution is a more appropriate procedure or requirement than what is set out in S. 1662 which is basically the same procedure passed by the House and Senate last year? That procedure provided that the State or Indian tribe objections would stand if supported by the passage by either House of a resolution supporting the State or tribe.

Dr. **Brewer**. Your bill, S. 1662, allows either House to sustain an objection. We basically feel it would be more democratic to have both Houses act on the matter.

Senator **Simpson**. The joint resolution also gives the President the opportunity to veto. What about that?

Dr. **Brewer**. Senator, I will have to answer for the record. I am sorry. I was not aware a joint resolution can be vetoed by the Executive.

Senator **Simpson**. That is all right. I am not interested in sharpshooting you. I am just interested in your comments. I would appreciate it if you would furnish that for the record.

Dr. **Brewer**. Yes, sir.

[Subsequent to the hearings Dr. Brewer supplied the following:]

Title VII of S. 1662 addresses congressional review of State objections to the Secretary's decision to submit an application to construct a repository or retrievable monitored storage facility. As we understand section 701(f)(3), it provides for a one-house veto of the Secretary's decision. The Administration of every President since 1932 has expressed opposition on constitutional grounds to one-house veto provisions, finding that these provisions represent legislative action in a manner inconsistent with the legislative procedures prescribed by the Constitution and also that they constitute an unconstitutional encroachment on the President's power and duty to execute the law. In the event Congress desires to overturn Executive Branch actions taken under authority vested by law in the Executive, the remedy lies in new legislation which, under the Constitution, must be presented to the President before it may be come effective. A joint resolution, which would be presented to the President for signature or veto, is a proper mechanism for Congress to use to revoke authority or alter Executive decisions—such as the site selection involved here—otherwise provided by law to the Executive Branch of government.

Senator SIMPSON. That concludes my questions. The other committee members will be submitting written questions. We would appreciate having your response.

The hearing will reconvene at 1:30 p.m. Thank you very much.

[Whereupon, at 12:10 p.m. the hearing was recessed, to reconvene at 1:30 p.m.]

AFTERNOON SESSION

The CHAIRMAN. The committee will come to order.

I am happy to welcome this afternoon the Nuclear Regulatory Commission. I am pleased to have all you gentlemen here. I appreciate your appearance and I appreciate your willingness to accommodate your schedule to ours.

STATEMENT OF HON. NUNZIO J. PALLADINO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY COMMISSIONER JOHN F. AHEARNE; COMMISSIONER VICTOR GILINSKY; COMMISSIONER THOMAS M. ROBERTS; AND WILLIAM DIRCKS, EXECUTIVE DIRECTOR FOR OPERATIONS

Mr. PALLADINO. Thank you, Mr. Chairman.

We have submitted prepared testimony on S. 1662. With your permission and in the interest of time I would like to summarize and highlight some of the major features.

Mr. Chairman, I welcome this opportunity to appear before you and testify on the view of the Nuclear Regulatory Commission concerning nuclear waste storage and disposal as related in S. 1662.

With me today are three of my fellow Commissioners, Mr. Ahearne, Mr. Roberts, Mr. Gilinsky. Commissioner Bradford was here earlier but could not be here at this time. Also with us is William Dircks, the Executive Director for Operations for the NRC.

With regard to the bill itself, while we have some differences in detail, the overall thrust of the legislation appears to be very good to solve a high level waste problem.

S. 1662 has a number of important provisions with which we agree. It recognizes the need for additional storage facilities for spent fuel both onsite at reactors and at separate sites away from reactors; and the need to expedite the licensing activities related to expanding spent fuel capacity onsite at a reactor. The bill provides for a hybrid licensing process in which the Commission may grant an interim license prior to conducting or completing any required hearings on such application.

I strongly feel this provision is very desirable and the majority of the Commission supports the provision believing it will not lower the protection to public health and safety or the environment.

I would also like to inform your committee that in anticipation of requests to license away from reactor facilities, the NRC last fall promulgated 10 CFR part 72 licensing regulation for the storage of spent fuel in an independent spent fuel storage installation.

As a result the NRC is ready and able to take prompt action for licensing actions related to interim spent fuel storage.

Like the sponsors of S. 1662, the Commission believes it is desirable that the national program be tied to a realistic time schedule. We believe confidence in the Federal Government's ability to provide for safe and permanent disposal of nuclear waste will increase if congressionally mandated milestone schedules are established and met.

The Commission will do everything in its power to avoid delaying the national program. This goal will be a very difficult one to achieve in the time allowed for construction authorization proceedings under this bill.

Under this tight time frame, it becomes extremely important that we receive a complete license application from DOE containing all the information we will need to resolve the issues in dispute.

S. 1662 would require NRC to promulgate technical criteria for a high-level waste repository by January 1, 1983. As you know we have already finalized the procedural part of our 10 CFR 60 repository licensing rule for the geologic disposal of high-level waste.

We issued the technical criteria for public comment in July of 1981 and we expect to be able to finalize them this year.

We are concerned about the absence of the generally applicable environmental standards from EPA, which EPA has been developing for a number of years. They have not been issued even in draft form for public comment. In their absence we have been using internal EPA working drafts which have been essentially the same for the past 2 or 3 years.

If the EPA standard is not issued soon or changes significantly from the current drafts, we may not be able to meet the January 1, 1983, deadline as specified in the bill.

We have several other points in our testimony about which we ask for clarification, but there are two other points in the bill that are worth highlighting in my comments.

One relates to section 402 which requires that we include criteria for a license amendment to decommission the repository. In our proposed regulation we have dealt with decommissioning only in a general way, with the intent of augmenting the criteria in several years when we have more experience.

We believe it is premature to define detailed decommissioning criteria at this time and that the general requirements are sufficient for the next several years.

I would also speak to the State participation issue. The Commission supports provisions for DOE to inform and consult with States throughout the site screening and characterization stages which hopefully will serve to resolve State concerns.

If a significantly affected State's concerns are not resolved, we believe the State should have an opportunity to object formally to the construction and operation of a high level waste repository.

The Commission agrees that a procedure should be defined whereby the President and the Congress could review and resolve such formal State objections.

Mr. Chairman, this concludes my statement. I would ask we have the opportunity to submit further comments on S. 1662 after we have prepared a more detailed analysis of S. 637.

We appreciate the opportunity to testify on such an important piece of legislation. My colleagues and I stand ready to respond to any questions.

[The prepared statement of Mr. Palladino follows:]

STATEMENT OF HON. NUNZIO J. PALLADINO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, I WELCOME THIS OPPORTUNITY TO APPEAR BEFORE YOU AND TESTIFY ON THE VIEWS OF THE NUCLEAR REGULATORY COMMISSION CONCERNING NUCLEAR WASTE STORAGE AND DISPOSAL AS RELATED TO S. 1662. WITH YOUR PERMISSION, MR. CHAIRMAN, MY REMARKS TODAY WILL ADDRESS ONLY THE MAJOR FEATURES OF THE BILL THAT WE HAVE IDENTIFIED SO FAR AS BEARING ON THE COMMISSION'S RESPONSIBILITIES. AS SOON AS WE HAVE COMPLETED A MORE COMPREHENSIVE ANALYSIS, I WILL ALSO SUBMIT COMMENTS ON SPECIFIC PROVISIONS OF S. 1662 AND ON S. 637 FOR THE RECORD.

I SHOULD LIKE TO NOTE THAT BOTH THE CONGRESS AND THE NUCLEAR REGULATORY COMMISSION (NRC) HAVE BEEN WORKING OVER THE PAST SEVERAL YEARS ON DEVELOPING PROCEDURES TO IMPROVE THE MANAGEMENT OF HIGH-LEVEL WASTES. IN MANY RESPECTS IF NOT ALL, OUR GOALS AND OBJECTIVES ARE THE SAME AS THOSE EXPRESSED IN S. 1662. WE ARE PLEASED TO FIND A NUMBER OF PROVISIONS IN THE PROPOSED BILL REFLECTING RECOMMENDATIONS WE HAVE MADE IN THE PAST. THESE PROVISIONS INCLUDE: (1) THE REQUIREMENT FOR MULTIPLE SITE CHARACTERIZATION BY THE DEPARTMENT OF ENERGY TO INCREASE CONFIDENCE THAT AT LEAST ONE ACCEPTABLE SITE CAN BE FOUND EARLY ON; (2) A MULTI-STEP HIGH-LEVEL WASTE REPOSITORY LICENSING PROCEDURE; (3) STATE PARTICIPATION IN THE FEDERAL DECISION-MAKING PROCESS FOR LONG-TERM STORAGE AND DISPOSAL OF HIGH-LEVEL WASTES; AND (4) A TIME SCHEDULE TO COMPLETE ALL OF THE REQUIRED FEDERAL ACTIONS. WHILE WE MAY HAVE SOME DIFFERENCES ON DETAILS

IN THESE AREAS, THE OVERALL THRUST OF THE LEGISLATION APPEARS TO BE A GOOD ONE TO SOLVE THE HIGH-LEVEL NUCLEAR WASTE PROBLEM.

IN THE TIME REMAINING, I WOULD LIKE TO ADDRESS SEVERAL OF THE MAJOR CONCEPTS IN S. 1662.

INTERIM STORAGE OF COMMERCIAL SPENT FUEL (TITLE 111)

S. 1662 RECOGNIZES THE NEED FOR ADDITIONAL STORAGE CAPACITY FOR SPENT FUEL BOTH ON-SITE AT REACTORS OR AT SEPARATE SITES AWAY FROM REACTORS. TO EXPEDITE THE LICENSING ACTIVITIES RELATED TO EXPANDING SPENT FUEL CAPACITY ON-SITE AT A REACTOR, THE BILL PROVIDES FOR A HYBRID LICENSING PROCESS IN WHICH THE COMMISSION MAY GRANT AN INTERIM LICENSE PRIOR TO CONDUCTING OR COMPLETING ANY REQUIRED HEARINGS UPON SUCH APPLICATION. I STRONGLY FEEL THAT THIS PROVISION IS DESIRABLE. A MAJORITY OF THE COMMISSION SUPPORTS THIS PROVISION, BELIEVING THAT IT WILL NOT LOWER THE PROTECTION TO THE PUBLIC HEALTH AND SAFETY OR THE ENVIRONMENT. TWO COMMISSIONERS DISAGREE, HOWEVER.

FURTHERMORE, THE BILL DIRECTS THE SECRETARY OF DOE TO CONSTRUCT OR ACQUIRE OR LEASE SUCH ADDITIONAL STORAGE CAPACITY AS MAY BE NEEDED TO ALLEVIATE ANY INTERIM STORAGE PROBLEMS ENCOUNTERED BY THE UTILITIES. THESE DOE FACILITIES WOULD REQUIRE NRC LICENSES UNDER THE BILL AND AS SUCH SECTION 202(3) OF THE ENERGY REORGANIZATION

ACT OF 1974 WOULD BE MODIFIED BY SECTION 309 TO ENSURE THAT NRC HAS SUCH AUTHORITY. THE COMMISSION WELCOMES AND SUPPORTS THIS CLARIFICATION OF OUR AUTHORITY UNDER SECTION 202(3).

MR. CHAIRMAN, I ALSO WOULD LIKE TO INFORM YOUR COMMITTEE THAT, IN ANTICIPATION OF REQUESTS TO LICENSE AWAY-FROM-REACTOR FACILITIES, THE NRC LAST FALL PROMULGATED OUR 10 CFR PART 72 LICENSING REGULATION FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION. AS A RESULT, NRC IS READY AND ABLE TO TAKE PROMPT ACTION FOR ANY LICENSING ACTIONS RELATING TO INTERIM SPENT FUEL STORAGE.

STATUTORY TIME SCHEDULE (TITLE IV)

LIKE THE SPONSORS OF S. 1662, THE COMMISSION BELIEVES IT DESIRABLE THAT THE NATIONAL PROGRAM BE TIED TO A REALISTIC TIME SCHEDULE. WE BELIEVE CONFIDENCE IN THE FEDERAL GOVERNMENT'S ABILITY TO PROVIDE FOR SAFE AND PERMANENT DISPOSAL OF NUCLEAR WASTE WILL INCREASE IF CONGRESSIONALLY MANDATED MILESTONE SCHEDULES ARE ESTABLISHED AND MET. THE COMMISSION WILL DO EVERYTHING IN ITS POWER TO AVOID DELAYING THE NATIONAL PROGRAM, BUT THIS GOAL WILL BE VERY DIFFICULT TO ACHIEVE IN THE TIME ALLOWED FOR CONSTRUCTION AUTHORIZATION PROCEEDINGS UNDER THIS BILL. SECTION 405 PROVIDES TWO YEARS AND NINE MONTHS BETWEEN THE TIME WE RECEIVE AN APPLICATION AND THE JANUARY 1, 1988

DEADLINE FOR OUR DECISION ON CONSTRUCTION AUTHORIZATION.

UNDER SUCH A TIGHT TIME FRAME, IT BECOMES EXTREMELY IMPORTANT THAT WE RECEIVE A COMPLETE LICENSE APPLICATION FROM DOE CONTAINING ALL THE INFORMATION WE WILL NEED TO RESOLVE THE ISSUES IN DISPUTE. AN INCOMPLETE SUBMITTAL MAY CAUSE THE LICENSE PROCEEDING TO EXTEND BEYOND THE PROPOSED 1988 DEADLINE. THE NRC STAFF HAS SOME CONCERN ABOUT WHETHER THE BILL PERMITS SUFFICIENT TIME FOR DOE TO DO THE NECESSARY SITE INVESTIGATIONS AND OTHER TECHNICAL WORK TO SUBMIT A COMPLETE APPLICATION. IN ADDITION, TO THE EFFECT INSUFFICIENT TIME MAY HAVE ON THE QUALITY OF THE LICENSE APPLICATION, THERE IS ANOTHER POTENTIAL NEGATIVE EFFECT. FAILURE TO MEET EITHER THE MANDATED LICENSE APPLICATION DATE OR SUBSEQUENT APPROVAL BY THE COMMISSION WOULD BE WIDELY PERCEIVED AS ANOTHER MAJOR SETBACK IN DEALING WITH HIGH-LEVEL WASTE.

S. 1662 WOULD REQUIRE NRC TO PROMULGATE TECHNICAL CRITERIA FOR A HIGH-LEVEL WASTE REPOSITORY BY JANUARY 1, 1983. AS YOU MAY KNOW, WE HAVE ALREADY FINALIZED THE PROCEDURAL PART OF OUR 10 CFR 60 REPOSITORY LICENSING RULE FOR THE GEOLOGIC DISPOSAL OF HIGH-LEVEL WASTES. WE ISSUED THE TECHNICAL CRITERIA FOR PUBLIC COMMENT IN JULY, 1981, AND EXPECT TO BE ABLE TO FINALIZE THEM NEXT YEAR. WE ARE CONCERNED, HOWEVER, ABOUT THE ABSENCE OF THE GENERALLY APPLICABLE

ENVIRONMENTAL STANDARDS FROM EPA, WHICH EPA HAS BEEN DEVELOPING FOR A NUMBER OF YEARS. THEY HAVE NOT EVEN BEEN ISSUED IN DRAFT FORM FOR PUBLIC COMMENT. IN THEIR ABSENCE, WE HAVE BEEN USING INTERNAL EPA WORKING DRAFTS WHICH HAVE BEEN ESSENTIALLY THE SAME FOR THE PAST TWO OR THREE YEARS. IF THE EPA STANDARD IS NOT ISSUED SOON, OR CHANGES SIGNIFICANTLY FROM THEIR CURRENT DRAFTS, WE MAY NOT BE ABLE TO MEET THE JANUARY 1, 1983 DEADLINE AS SPECIFIED IN THE BILL.

FURTHER COMMENTS ON DISPOSAL OF HIGH-LEVEL WASTE FROM CIVILIAN NUCLEAR FACILITIES (TITLE IV)

S. 1662 LAYS OUT KEY PROCEDURAL PROVISIONS FOR DEVELOPMENT OF A SYSTEM FOR PERMANENT, DEEP GEOLOGIC DISPOSAL IN A REPOSITORY CONSTRUCTED AND OPERATED BY DOE AND LICENSED BY NRC. NRC PUBLISHED THE FINAL VERSION OF THE PROCEDURAL PORTION OF OUR 10 CFR PART 60 LICENSING RULE ON FEBRUARY 25, 1981, AND WE ARE GRATIFIED TO NOTE THAT S. 1662 OUTLINES PROCEDURES GENERALLY SIMILAR TO MOST OF THE PROVISIONS IN OUR RULE. THERE ARE, HOWEVER, A FEW REMAINING AREAS WE BELIEVE MAY WARRANT FURTHER CONSIDERATION BY YOUR COMMITTEE.

SIMILAR TO S. 1662, COMMISSION RULES CONTAIN A REQUIREMENT FOR MULTIPLE SITE CHARACTERIZATION BY DOE TO INCREASE THE LIKELIHOOD

THAT AT LEAST ONE SITE WILL BE FOUND EARLY WHICH IS ACCEPTABLE FOR HIGH-LEVEL WASTE DISPOSAL. THIS REQUIREMENT ALSO ASSURES THAT IF DIFFICULTIES DEVELOP AT THE FIRST SITE CHOSEN, ALTERNATIVES SITES WILL BE MORE READILY AVAILABLE. WHILE SECTION 403 OF THE BILL REQUIRES THE SECRETARY TO RECOMMEND THREE SITES TO THE PRESIDENT AS CANDIDATES FOR SITE CHARACTERIZATION, IT IS NOT CLEAR FROM THE BILL'S DRAFTING WHETHER THE PRESIDENT MUST APPROVE MORE THAN ONE. THIS COULD BE READ TO ALLOW DOE TO SUBMIT A LICENSE APPLICATION AFTER CHARACTERIZING ONLY ONE SITE. WE RECOMMEND THAT THE BILL BE CLARIFIED TO REQUIRE AT LEAST THREE SITES FOR CHARACTERIZATION. IF THE PRESIDENT REJECTS ANY OF THE THREE SITES RECOMMENDED BY THE SECRETARY, THE SECRETARY SHOULD BE REQUIRED TO IDENTIFY ADDITIONAL SITES UNTIL AT LEAST THREE HAVE BEEN SELECTED FOR CHARACTERIZATION. WE ALSO NOTE THAT THE BILL REQUIRES THE CONSIDERATION OF SITES IN SEVERAL GEOLOGIC MEDIA "TO THE EXTENT PRACTICABLE GIVEN THE SCHEDULE," THE COMMISSION PREFERS THAT SITES IN AT LEAST TWO MEDIA -- ONE OF WHICH IS NOT SALT -- BE CHARACTERIZED.

WE ARE PLEASED TO FIND THAT THE BILL PROVIDES SEVERAL OPPORTUNITIES FOR NRC REVIEW AND COMMENT ON DOE SITE CHARACTERIZATION PLANS, ASSESSMENTS, AND ACTIVITIES. THIS WILL HELP ASSURE BOTH THAT DOE'S ACTIVITIES GENERATE THE INFORMATION NRC NEEDS TO EVALUATE THE

SUITABILITY OF THE SITE FOR GEOLOGIC DISPOSAL, AND THAT THEY DO NOT COMPROMISE THE LICENSABILITY OF THE SITE. WE BELIEVE, HOWEVER, THAT OUR ABILITY TO CONDUCT AN EXPEDITIOUS LICENSE REVIEW WOULD BE SUBSTANTIALLY IMPROVED BY INCLUDING SOME PROVISION FOR THE COMMISSION TO ADVISE DOE REGARDING THE SELECTION OF TESTS IN SECTION 404(C) NECESSARY FOR A COMPLETE LICENSE APPLICATION. WE WOULD APPRECIATE HAVING THE OPPORTUNITY TO PROVIDE SPECIFIC LANGUAGE FOR THE RECORD. THE COMMISSION WOULD APPRECIATE CLARIFICATION OF THE MEANING AND INTENT OF THE LANGUAGE IN SECTION 402(B) PROVIDING THAT THE COMMISSION "...SHALL LIMIT THE RETRIEVABILITY OF THE WASTE AND SPENT FUEL EMPLACED IN THE REPOSITORY UNLESS SUCH ACTION IS NEEDED TO PROTECT THE PUBLIC HEALTH, SAFETY AND THE ENVIRONMENT." WE BELIEVE THE BASIC DESIGN OF A REPOSITORY SHOULD BE SUCH THAT THE WASTE SHOULD BE SO EMPLACED THAT A RANGE OF ACTIONS INCLUDING RETRIEVAL COULD BE TAKEN DURING THE PERIOD WHEN THE REPOSITORY IS BEING EVALUATED TO CONFIRM ITS PERFORMANCE. THIS PERIOD COULD BE SHORT OR COULD LAST A FEW DECADES. WE WOULD RECOMMEND NOT DEALING WITH THIS DESIGN CONSIDERATION IN THE LAW. WE HOPE THAT YOUR INTENT IS CONSISTENT WITH OUR POSITION, AND WE WOULD WELCOME CLARIFICATION.

WE HAVE ONE ADDITIONAL CONCERN REGARDING THE CONTENT OF THE TECHNICAL CRITERIA AS SPECIFIED IN THE BILL. SECTION 402(B)(3) REQUIRES THAT

WE INCLUDE CRITERIA FOR A LICENSE AMENDMENT TO DECOMMISSION THE REPOSITORY. IN OUR PROPOSED REGULATION, WE HAVE DEALT WITH DECOMMISSIONING ONLY IN A GENERAL WAY, WITH THE INTENT OF AUGMENTING THE CRITERIA IN SEVERAL YEARS WHEN WE HAVE MORE EXPERIENCE. WE BELIEVE THAT IT IS PREMATURE TO DEFINE DETAILED DECOMMISSIONING CRITERIA AT THIS TIME, AND THAT THE GENERAL REQUIREMENTS ARE SUFFICIENT FOR THE NEXT SEVERAL YEARS. WE WOULD BE HAPPY TO PROVIDE CLARIFYING LANGUAGE WITH OUR DETAILED COMMENTS.

TEST AND EVALUATION FACILITY (SECTION 407)

IN LIGHT OF THE CONTEMPLATED TIME SCHEDULE, THE COMMISSION WOULD NOT OBJECT TO THE LEGISLATION THAT WOULD EXEMPT FROM NRC LICENSING SMALL QUANTITIES OF HIGH-LEVEL RADIOACTIVE WASTE USED IN THE TEST AND EVALUATION FACILITY BUT WOULD REQUIRE THE SECRETARY TO OBTAIN THE CONCURRENCE OF THE COMMISSION IN THE SITING, DESIGN, AND CONSTRUCTION AND OPERATION OF THE FACILITY. HOWEVER, THE COMMISSION WOULD WELCOME LANGUAGE TO ASSURE THAT THE TEST AND EVALUATION FACILITY WILL NOT DIVERT RESOURCES FROM THE FULL-SCALE REPOSITORY DEVELOPMENT PROGRAM.

LONG TERM STORAGE (TITLE V)

THE BILL PROVIDES FOR A POSSIBLE LONG TERM STORAGE COMPONENT TO BE SEQUENCED BETWEEN INTERIM SPENT FUEL STORAGE AND ULTIMATE GEOLOGIC

DISPOSAL. THE BILL FURTHER STATES THAT THIS LONG TERM STORAGE SHALL NOT CONSTITUTE AN ALTERNATIVE TO ULTIMATE GEOLOGIC DISPOSAL. AS MY PREDECESSOR HAS TESTIFIED BEFORE, THE COMMISSION DOES NOT OBJECT TO A LONG TERM STORAGE COMPONENT IN THE NATIONAL STRATEGY. IT MAY BE USEFUL TO ALLOW MORE TIME TO SETTLE THE REPROCESSING ISSUE. IN ADDITION, THERE MAY BE SOME TECHNICAL ADVANTAGES SINCE THE ULTIMATE TEMPERATURE OF THE WASTE AT THE TIME OF DISPOSAL CAN BE REDUCED BY SURFACE COOLING. WE WOULD SUGGEST, HOWEVER, THAT CONSIDERATION BE GIVEN TO LOCATING SUCH STORAGE AT THE SITE OF A FUTURE REPROCESSING PLANT OR AT THE REPOSITORY LOCATION. THE COMMISSION ALSO AGREES THAT SUCH A LONG TERM STORAGE FACILITY SHOULD NOT BE A SUBSTITUTE FOR GEOLOGIC DISPOSAL NOR SHOULD IT BE PERMITTED TO DETRACT FROM THE REPOSITORY DEVELOPMENT PROGRAM.

STATE PARTICIPATION (TITLE VI)

THE COMMISSION SUPPORTS PROVISIONS FOR DOE TO INFORM AND CONSULT WITH STATES THROUGHOUT THE SITE SCREENING AND CHARACTERIZATION STAGES, WHICH HOPEFULLY WILL SERVE TO RESOLVE STATE CONCERNS. IF A SIGNIFICANTLY AFFECTED STATE'S CONCERNS ARE NOT RESOLVED, WE BELIEVE IT SHOULD HAVE AN OPPORTUNITY TO OBJECT FORMALLY TO THE CONSTRUCTION AND OPERATION OF A HIGH-LEVEL WASTE REPOSITORY. THE COMMISSION AGREES THAT A PROCEDURE SHOULD BE DEFINED WHEREBY THE PRESIDENT AND THE CONGRESS REVIEW AND RESOLVE SUCH FORMAL STATE OBJECTIONS.

MR. CHAIRMAN, THIS CONCLUDES MY FORMAL PRESENTATION, ALTHOUGH WE WOULD LIKE TO HAVE THE OPPORTUNITY TO SUBMIT FURTHER COMMENTS ON S. 1662 AND AFTER WE HAVE PERFORMED A MORE DETAILED ANALYSIS OF S. 637, ON THAT BILL AS WELL. WE APPRECIATE THIS OPPORTUNITY TO TESTIFY ON SUCH AN IMPORTANT PIECE OF LEGISLATION.

The CHAIRMAN. Thank you very much. Do any of the other Commissioners desire to make a separate or additional statement at this time?

Mr. AHEARNE. Senator McClure, I am very interested as you and your colleagues in seeing a piece of legislation passed. It is a problem that has been sitting for years. I think the bill incorporates many of the good features that have come up and it almost made it several times but slipped back down again. We heartedly endorse your attempt to make it all the way this time.

The CHAIRMAN. Thank you. We are as frustrated as anyone else. While we sometimes point to you gentlemen or others in other agencies of government as the source of delay, occasionally we have to accept that responsibility ourselves. This is one area where the responsibility is ours. I hope we can meet it.

I noticed on page 1 you said you wanted to have an opportunity to submit comments on specific provisions of the two bills for the record. I would hope you could get those comments to us quickly because we do hope to be able to move this legislation. I would ask if you could get it to us within a week or so.

Mr. PALLADINO. Yes, sir.

The CHAIRMAN. I do note with respect to the interim license that there is dissent and that is not surprising. It is one of the issues. I understand why people are concerned. I appreciate the majority opinion and I also can understand the minority opinion.

Mr. Gilinsky?

Mr. GILINSKY. The way the bill is written, it looks to me as if the interim licensing provision would be something that would be applied as a matter of course and not for the unusual case you alluded to earlier.

In my view that is not good policy to adjudicate routinely after the fact whether or not activities should have been conducted or approved previously.

It does make sense to make some allowance for unusual cases. I think a provision should be introduced that would apply some sort of test and perhaps the Commission would apply it so this would not be a routine practice.

As it is written it would apply in cases where there is no hardship in waiting or where the technique is a novel one.

I would recommend to you some sort of restriction.

Let me say something about the other aspect of the hearing provisions. I would suggest the law not specify in as great detail as it does the specific provisions of the hearing. If the Congress wants to have something along the lines they usually call a hybrid hearing, you can indicate that. I would leave it to the Commission to work out the precise details. It may be the hearing procedures you have outlined are in fact very useful ones but sometimes these things do not work out quite the way they are planned to and it would be useful if the Commission could adjust the hearing procedures in light of experience.

The CHAIRMAN. I appreciate those comments. I appreciate the former comment because I do not disagree at all that the interim licensing in many instances is not a routine matter and should not be viewed as such. There are some instances where we do deal with situations in which it could be a routine matter or where it could be necessary to deal with unique circumstances.

It grows out of my concern that we have such differing estimates of what would be necessary. We have been told uniformly for quite a little time that AFR was absolutely necessary by 1983 and we would have some utilities shut down by the end of 1983 certainly if they did not get some kind of relief from the onsite storage requirements they were then laboring under.

I have been told today and recently that maybe we have more time than that. It will take more time than that. If our estimates are wrong, there are going to be some emergency situations that must be dealt with as an alternative to shutting down a reactor because it cannot refuel the core. I think that is what we are looking at, how we can make certain we can meet that AFR requirement or alternatively the reracking or other procedures that may be available to meet the needs for refueling of cores and existing reactors.

I appreciate your comments.

Mr. GILINSKY. Thank you.

The CHAIRMAN. On page 4 of your statement you talk about the time frame and the need for timely information and complete information from DOE. I think that is addressed to DOE and I will see that the message is delivered. I would underscore that. I would hope you would make that very directly to DOE. Certainly if they give you inadequate information it is going to make it difficult for you and that would frustrate both you and us.

I will work with you in any way I can to help and I think other members of this committee will also. I would not disagree with the statement made in the last sentence of that paragraph that failure to meet a deadline might be widely perceived as another major setback in dealing with high-level waste and that sometimes we have to make a decision.

I would regard it as a major setback to dealing with high-level waste unless we have a timetable we do meet. I hope we will avoid that by making certain we do meet whatever timetable is set.

Mr. PALLADINO. We will do our best, Mr. Chairman.

The CHAIRMAN. I am sure you will. I pledge our cooperation in trying to make that work for you. Part of the time frame compression that may happen occurs at this end in the enactment of legislation. If we delay in enacting it we are going to have to address the dates set and the time frame.

Mr. PALLADINO. There are a number of steps that we have to take. An environmental impact statement has to be prepared. It has to be sent out for comments. That takes about 4 months, at least, after the statement has been prepared. We have to assimilate the comments and modify the statement that is finally issued and then there is the hearing process. All these add up to time that may be longer than the time we have unless we use some very innovative measures.

The CHAIRMAN. One of the potential delays is referred to on the bottom of page 4 and the top of page 5 again addressed to another agency, EPA. It is difficult for them to adopt standards but it does not mean they do not have to. Sometime they are going to have to adopt those standards and they might as well get at it.

I share your concern that they have not done it and express my determination that they shall go.

Mr. **Palladino**. We hope you are successful, Mr. Chairman. We certainly need those standards.

The **Chairman**. I have noted your request for clarification regarding the Presidential responsibility with respect to the characterization of sites and that is a matter we will consider further before we finish legislating.

On page 7 you have indicated you would appreciate having the opportunity to provide specific language for the record dealing with section 404(c). I hope you could get that to us very quickly so we will be in a position to take that recommendation seriously as we go through the markup of the legislation.

Mr. **Palladino**. We will try to get that in within a week along with our other comments.

The **Chairman**. Thank you. The question you have referred to on the bottom of page 7 with respect to the period and the design consideration expressed in the statute may be needing further definition is perhaps a legitimate concern.

We perhaps need to revisit that and look at it a little more closely before we complete the legislation.

On page 8 you have indicated you would like to provide clarifying language. I hope that will be forthcoming in the same time frame.

With respect to the multiple characterization of sites to which both you and I have referred, do you envision a simultaneous licensing action for more than one repository?

Mr. **Palladino**. No, sir. I do anticipate that we will characterize three sites. I would anticipate the test and evaluation facility to be at one site. Initially I would foresee the request for licensing of a single repository.

The **Chairman**. If the President makes a characterization of multiple sites, there is injected another step in the decisionmaking process unless you immediately move forward simultaneously licensing each of the sites which he characterized. Is that not correct?

Mr. **Palladino**. We would not anticipate licensing the site during the characterization stage or even through the test and evaluation stage. We would anticipate licensing the site only when it has been identified as the final repository.

The **Chairman**. Could you provide more specific comments on the hybrid licensing process we have envisioned for onsite storage of reactors? What generic actions have been undertaken by the Commission to date which might be of assistance?

Mr. **Palladino**. As I understand hybrid licensing, the first part would be a legislative type of hearing in which an effort is made to identify the issues that ought to be litigated. There is a feeling among a number of us that this could expedite identifying those issues.

After the issues that are to be litigated have been identified, then we would revert to the normal adjudicatory process to litigate those issues.

There are questions as to whether or not we have had enough experience with that type of operation to gain time but we believe that even though we have not had a great deal of experience with that process, we could possibly save several months.

The **Chairman**. Do you see any generic problems with respect to reracking, increasing the density of racking in the existing pool?

Mr. **Palladino**. So far we have not uncovered any generic problems. As far as the status, I am going to refer to our EDO who probably has more specifics on that than I do.

Mr. **Dircks**. Mr. Chairman, so far up to the present we have had 84 requests for expansion of capacity. Twenty-one of those requests have been for the second time around by utilities. We have approved 72 of those requests including 11 for the second time around. Twelve requests for expansion are still pending.

One of those requests deals with the plant at Maine Yankee which does involve somewhat of a different technology.

We do not anticipate any delays in approving the requests.

I might note three reactors that are currently operating are operating without full core capacity. That is Big Rock Point, Robinson, and San Onofre.

Mr. **Ahearne**. The Maine Yankee is the first densification, is it not?

Mr. **Dircks**. Yes.

Mr. **Ahearne**. The densification concept is going through its first try at a hearing right now.

The **Chairman**. You are not far enough into that to come to any conclusions about it yet, is that correct?

Mr. **Ahearne**. That would be correct.

The **Chairman**. If EPA were able to propose its environmental standards for a high-level waste repository by the end of 1981, would the Commission be able to meet the January 1, 1983, deadline?

Mr. **Palladino**. For issuance of its criteria?

The **Chairman**. Yes.

Mr. **Palladino**. Yes.

The **Chairman**. If that is delayed 6 months by EPA then what will happen? Could you still meet your January 1, 1983 deadline?

Mr. **Dircks**. If they were delayed 6 months without major changes in their approach, it would not delay us too much. If they had a major change in approach and a major change in substance, we would have some trouble.

The **Chairman**. Will the NRC evaluate present population densities near a proposed site in the licensing of a geologic repository?

Mr. **Palladino**. I am going to ask one of my fellow Commissioners to answer that. I gather the population question was not accepted as part of the Commission rules.

Mr. **Ahearne**. That is right.

The **Chairman**. It has not been up to this time?

Mr. **Palladino**. That is right.

Mr. **Ahearne**. That is an issue I am sure will come back up again when we address the final rule on the technical criteria. Right now it is out in a proposed rule.

The **Chairman**. Thank you. Senator Simpson?

Senator **Simpson**. Thank you, Mr. Chairman.

I was just going to ask how it was going but I will not ask that.

Mr. **Palladino**. I appreciate that, Senator.

Senator SIMPSON. I hope you are learning to know each other and I see some nods there. You are an interesting and diverse group indeed.

Let me ask several questions back on the issue where S. 1662 has this limitation of the maximum capacity of away from reactor spent fuel storage that could be provided under the bill of 2,800 metric tons. We discussed this some this morning. This figure is the estimate in NRC's final generic environmental impact statement for spent fuel storage for the amount of additional storage capacity needed in the year 1990.

Some interesting figures were presented as to what would be required in the year 2000, tenfold that requirement assuming completion of whatever we do with expansion plans and transshipments and so on.

Have you revised your estimates for the amount of any additional spent fuel storage capacity needed in the year 1990 assuming those conditions? Do you believe the 2,800-metric-ton limit is an appropriate level for maximum allowable AFR capacity?

Mr. PALLADINO. I speak now with my own personal bias. I have not discussed this with other members of the Commission. I would suggest the limit not be made a part of the law so that we can have some flexibility as we learn more about the situation we are going to face. A limit in the law is so prescriptive that we may wish we had not had it there. I would rather leave it to the Secretary of DOE to determine what that number ought to be as time goes on.

Senator SIMPSON. Yesterday one of the witnesses suggested the NRC be required to concur in the DOE's determination under S. 1662 for purposes of gaining access to a Federal AFR and a utility might not reasonably provide adequate onsite spent fuel storage capacity in time to assure the continued orderly operation of the plant.

It seems to me that determination is really more a question of assessing available storage capacity rather than really a question of health and safety although certainly I am not at all trying to denigrate that. That is the mission of the NRC to protect the public health and safety.

In that situation where we are simply assessing available capacity, I question the need for NRC concurrence. Do you share that view?

Mr. PALLADINO. Yes. There may be some benefit in consulting with NRC to the extent that we can help them confirm the availability of onsite storage or its unavailability but I would not personally see the need for concurrence. I do not know if any of my fellow Commissioners feel otherwise.

Mr. GILINSKY. I agree, Senator. I also think the chairman is right in suggesting there not be a limitation at least the limitation of 2,800 metric tons placed on this storage facility. What we are trying to buy is a certain amount of assurances or search capacity and get some elbowroom and we should make sure we are not building another suit that is too small.

Senator SIMPSON. S. 1662 also provides that a utility should have access to the Federal AFR if it cannot reasonably provide sufficient onsite storage capacity to maintain a full-core reserve.

The NRC has at least in the past taken the position that the full core reserve capacity is not absolutely necessary for public health and safety reasons.

Would you agree there are strong economic reasons at least as to why it is desirable to maintain a full core reserve capacity?

Mr. PALLADINO. I think there are good economic reasons. I have not been exposed to this subject as long as my colleagues but based on the knowledge I have, I would agree.

Senator SIMPSON. I think that is important.

Your testimony states that a majority of the Commission strongly feels that the provisions of S. 1662 for expediting the NRC approval of additional spent fuel storage capacity at sites including this hybrid hearing process is desirable. I am advised at least two of the Commissioners might disagree on that.

It appears to me that hybrid hearings may well have at least three advantages over the present requirments. It is going to give us an added certainty that the spent fuel expansion proposal is going to be decided in a timely manner hopefully. I think it is going to provide a broader opportunity for parties to the proceeding to submit whatever information they wish to have considered in the legislative-type hearing without some of the restrictions of NRC's present adjudicatory rules. I have observed those rules previously and it might provide us experience in the use of this hybrid hearing procedure which would be helpful in deciding whether similar procedures should be used in certain other or maybe all of the NRC's hearings.

I would be interested in hearing from each of you on that provision.

Mr. PALLADINO. We did address part of this issue earlier. Perhaps you were not here. I do feel there are opportunities for gaining time if we work out a good hybrid proceeding. There are concerns. I think Commissioner Gilinsky expressed his concerns earlier. Perhaps he would like to repeat them at this time.

Mr. GILINSKY. The meeting at which we discussed this, I merely said I wanted to think about it. It is a measure of our new efficiency that got translated into my disagreeing.

The way the interim licensing provision of the bill is written, there is not any restriction on applying it in the unusual case where there is indeed a good reason for applying it. As written it could be applied in every case including cases where there is no particular hardship involved in waiting for the proceeding to be completed or where you may be using a novel technique of storage which has not been used before.

I would introduce some sort of test, perhaps to be applied by the Commission itself or perhaps stated—I would have a test applied by the Commission itself so as to limit that provision to the unusual case where it might be needed.

Our record is pretty good. Even though some of the proceedings have taken a fair time, the ones that have been contested, no reactor has been in fact held up by the lack of storage capacity. Frankly I do not expect that to happen in the future.

I can understand providing for some assurance.

Senator SIMPSON. How many contested reracking proceedings have we had?

Mr. Gilinsky. I will have to ask Mr. Dircks.

Mr. Dircks. I can give you some experience on a few. Trojan; we have had a contested hearing on spent fuel expansion and it took about 2 years. Salem in Oregon, that lasted almost 2 years. Zion in Illinois, we are estimating about 18 months. Big Rock, a small plant which is also estimated to take about 18 months to complete the hearing and the review process. Maine Yankee is still up on contention.

There are others. We had one transshipment case, the Oconee McGuire case which has just been resolved by the Appeals Board. That lasted about 2 years.

The Chairman. Have you not had a transit case that lasted about 7 years?

Mr. Dircks. I am sure there will be some.

The Chairman. I am talking about past or current.

Mr. Dircks. The only one I know of is Oconee McGuire.

Mr. Ahearne. Senator, I would like to respond. The part about the hybrid hearing that I find most attractive is your third point. I believe the NRC should get some experience with that kind of a hearing process. It certainly does offer, at least in my mind, some hope to help us in the other proceedings.

Senator Simpson. I think it could be a remarkable breakthrough if used properly and if the public has their usual input and all those things are provided. I think it could be an excellent step forward.

In your testimony you raise the question about the language directing that NRC's technical criteria limit the retrievability of the waste and spent fuel emplaced in the repository unless it is actually needed to protect the public health, safety, and environment.

Under what conditions and for what reasons do you believe waste or spent fuel once emplaced in the repository should be removed?

Mr. Palladino. Could you refresh my memory as to where that was?

Senator Simpson. The language in section 402(b) of S. 1662 directing the NRC's technical criteria and limit the retrievability of the waste and spent fuel emplaced.

Mr. Palladino. Yes.

Senator Simpson. If it was simply for reprocessing, would it not make more sense to have a monitored retrievable storage capacity at the surface, at the repository site rather than emplace the spent fuel in the permanent repository and then remove it later?

Mr. Palladino. There are several points. There is a lack of clarity as to what was meant by the words in the quote. We believe the basic design of a repository should be such that we can get the spent fuel out.

My own feeling is there is a great deal of intrinsic value to the uranium and plutonium in the fuel before it is reprocessed and it should be retrievable so that if we want to get at the valuable materials we can do so.

I believe so far as long term is concerned, I would count on that to be reprocessed material that has been properly stabilized and capsulated and put in geologic formations.

Mr. Ahearne. Another point that I know has also been a concern of the staff is the retrievability provision we have currently is from the point that during the time the repository is still open and the stuff is being put into it, there may be developments within the repository or other experiments that indicate long-term processes that occur with respect to that waste package that might require the DOE to go back in and take the waste out, either to repackage it or put it into another repository.

The way we have this phrased is we would appreciate clarification because our rules currently would have the DOE required to be able to have access to retrieve it in case it was necessary in order to provide the necessary protection. That is not necessarily different from what you have in the bill. We would appreciate some clarification.

Senator Simpson. We will attempt to do that. Thank you.

The Chairman. Thank you, gentlemen. I apologize for having overlooked the opportunity at the outset to welcome you and particularly you, Mr. Palladino, as Chairman. There are other familiar faces. Mr. Ahearne and Mr. Gilinsky have appeared often before this committee and others in the past. We are delighted to have you here testifying. Mr. Roberts, we are pleased to have you join this group testifying and giving us the benefit of your counsel on matters we are all concerned with.

By all reports the Commission is functioning well. We appreciate that. We look forward to working with you on these difficult and very important matters in the future.

I would like to note for the record that I called attention this morning to the fact that I had introduced yesterday an amendment with respect to reprocessing and it has been called to my attention by the staff that an error was made in the Congressional Record with respect to that amendment.

The Record indicates it was introduced for myself, Mr. Stafford, Mr. Simpson, Mr. Symms and Mr. Domenici, and I can only conclude the bill clerk, in being hopeful, referred to the text of my remarks to indicate those gentlemen are cosponsors of the legislation and therefore assumed they were cosponsors of the amendment. They are not. I think some of those gentlemen might be very surprised if they thought they were cosponsors of that amendment.

The Record will be corrected. For those who might note that in the Record, I want to point out that amendment was introduced by myself and the other gentlemen were not cosponsors of that amendment.

The next group of witnesses is a panel with Hon. John Hernandez, Deputy Administrator, Environmental Protection Agency, Dr. Thomas A. Cotton, Director of the Office of Technology Assessment Radioactive Waste Management Study, and Mr. James Devine, Assistant Director of Engineering Geology with the U.S. Geological Survey, Department of the Interior.

STATEMENT OF JOHN HERNANDEZ, DEPUTY ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

Mr. HERNANDEZ. Mr. Chairman, thank you very much. This is my first opportunity to testify before you and I look forward to this opportunity.

Mr. Chairman and members of both committees, I am John Hernandez, Deputy Administrator of the Environmental Protection Agency.

I am pleased to provide you with EPA's comments on S. 1662, the National Nuclear Waste Policy Act of 1981 and S. 637, the Nuclear Waste Policy Act of 1981. Given the similarity of these two bills and the observation that S. 1662 is the more recent and more inclusive of the two, I will focus all of my comments on this broader bill.

I would like to start by congratulating both committees on developing an innovative approach to the problem of insuring a comprehensive Federal program for disposal of high-level radioactive wastes. This initiative can result in a stable policy leading to early development of a permanent disposal system, and I feel it speaks well for the efforts of all involved.

I prefer, however, to limit my comments to those areas which most directly affect EPA and defer other parts of the bill to those more intimately involved with these other issues.

The section of the bill most directly affecting EPA is section 402(a) which directs EPA to develop standards for the disposal of high-level waste. As you know EPA has been working on the development of such standards for 5 years. As a result of this effort we expect to propose our high-level waste standards by the end of January 1982.

The development of these standards has been difficult and very different from any other regulatory task we have undertaken. They have certainly taken longer than was originally expected. I feel that the extra time and effort has been worthwhile and that the standards and guidelines we will soon propose will lead to an effective program.

As currently drafted, the EPA standards include numerical performance requirements to limit long-term risks to the environment as well as general guidelines that should be followed to help insure that long-range disposal systems continue to provide protection far into the future.

An example of such a guideline is the required use of multiple barriers to isolate high-level waste from the environment. This is a principle we are pleased to see required by S. 1662.

The major remaining task we must accomplish before proposing our standards and guides is the completion of the regulatory impact analysis called for in Executive Order 12291.

Once proposed, these standards will require a relatively long public comment period, primarily because of the scope and complexity of our technical analyses in support of the standards. We plan to hold several public hearings at different locations across the country to help solicit these comments. We are also committed to having an independent scientific peer review of our analyses by the Agency's Science Advisory Board. This review will be concurrent with the public comment period. These reviews are essential to insure the reasonableness and technical accuracy of our approach and to establish public confidence in these regulations as they guide the development of our nuclear waste disposal systems.

To provide for this kind of review, we expect that the earliest promulgation date for our standards and guidelines would be 1 year after proposal. I am therefore asking that section 402(a) be modified to provide time for this kind of technical, scientific, and public review.

We have incorporated this and other technical changes in a suggested revision of section 402(a) which I will include with my written testimony. We also recommend that corresponding adjustments be made to the dates for NRC technical criteria and initial DOE site selection in sections 402(b) and 403(b) to assure an orderly program.

We also would like to suggest a change in the proposed timing for considering potential repository sites. There are still many unknowns concerning the appropriate geochemical and hydrological characteristics for a repository site. It is very important to begin detailed investigations of potential sites as soon as possible and we support early studies of three alternative sites for the first repository to be considered for licensing.

However, the same uncertainties that make it important to begin these investigations also increase the chances of unanticipated problems once site characterization begins. Thus we think it would be prudent for the national site survey program to be completed at approximately the time scheduled for selection of at least one of the first three sites for the first license application. In this way additional candidate sites might be quickly considered if none of the first three prove acceptable.

This concludes my prepared remarks. I would be glad to answer any questions you may have.

[The attachment to Mr. Hernandez' statement follows:]

SEC 402 (a) EPA Standard--

Not later than ~~June 1~~ January 30, 1982 the Administrator of the Environmental Protection Agency ~~pursuant to authority under existing law,~~ shall by rule, ~~promulgate~~ propose generally applicable standards and guidelines for ~~offsite~~ releases of ~~radioactivity~~ radionuclides from repositories capable of disposing of solidified high level radioactive waste and spent fuel from civilian nuclear activities. Promulgation of these standards and guidelines shall occur within a period not greater than one year after proposal.

The CHAIRMAN. Thank you very much. We will hear next from Dr. Thomas Cotton, Director of the Office of Technology Assessment Radioactive Waste Management Study.

STATEMENT OF THOMAS A. COTTON, OFFICE OF TECHNOLOGY ASSESSMENT

Mr. COTTON. Thank you, Mr. Chairman, for the opportunity to testify today. I have been asked to present OTA's views on various aspects associated with nuclear waste management and disposal as well as OTA's views on the bills being reviewed by this committee.

I would like to limit my oral remarks to the first part of my statement which describes our basic views of the basic elements of a comprehensive radioactive waste management policy. We have more detailed comments on specific elements of the bill you are considering which are contained in my testimony.

We also would like to submit for the record a more detailed analysis of the legislation later as you have requested.

The evidence is clear that not until the mid-1970's did the Federal Government begin to devote substantial attention or resources to the problem of nuclear waste management.

The waste management effort has in general been characterized by a number of fundamental ills including sharp and sudden shifts of policy; low priority placed upon the program at the agency and departmental level; inadequate resources both in money and people from year to year; general institutional instability and the failure to adequately address the concerns of States and others.

As a result there is today a widespread lack of confidence that the Federal Government can or will manage high level radioactive waste safely and efficiently and at a rate and scale commensurate with projected levels of nuclear power generation.

The deepest and most consuming doubts concern not so much the technology for disposal—the disagreement there centers on the feasible rate of technology development rather than on the choice of technology—but rather the institutional capacity of the Federal Government to carry out over a period of 20 years or more the difficult and sustained effort required to both build and operate a disposal system capable of handling large amounts of high level radioactive waste.

In addition to these public doubts concerning the waste disposal effort as a whole, the utilities with nuclear reactors face two critical uncertainties. First, as spent fuel continues to pile up, reactors are running out of storage space and may have to shut down unless more storage space is made available on a timely basis; and second, utilities face an open-ended responsibility for growing inventories of spent fuel with no idea when or how or at what cost that fuel will finally be disposed of.

To resolve both the public's and the utilities' uncertainties about how, when and whether high level radioactive waste can and will be finally and safely disposed of is the goal that a successful waste management program must be designed to meet. The greatest single obstacle to such a program is the severe erosion of public confidence in the Federal waste management effort.

In citing the past flaws and failures of the waste management program, we do not mean to suggest that no significant progress has been made—because indeed it has—or that any burden of blame must fall upon the shoulders of the many dedicated and competent people who have carried out that program.

The problem has not been the quality of the people involved but rather the tasks they have been called upon to perform with what until recently were meager resources and very difficult circumstances.

Indeed it has been the hard work of the staff and the laboratories of the involved Federal agencies that has laid the very firm groundwork for the commitment contained in the legislation this committee is considering.

I would like to add that throughout the course of our study we were greatly assisted by the willing cooperation of many people at the Department of Energy and the other Federal agencies; without that cooperation we would not have been able to do our job.

OTA was asked by the requesting committees and by the Congressional Technology Assessment Board to take a comprehensive view of the waste management problem and try to identify the main elements and steps required to bring into actual operation the comprehensive high level radioactive waste management system.

We have devoted 3 years of analysis to the subject during which we have sought and analyzed a broad cross section of views and ideas from the expert interested and affected communities.

The policy we will outline represents the result of that effort. It consists of a comprehensive and cohesive set of elements which we believe has a good chance of securing the broad and stable support needed to break the current stalemate and get on with the job of radioactive waste management.

The elements of the policy we will describe have been selected on the basis of a single simple principle: In waste management, perhaps even more than other matters, Murphy's Law is likely to reign supreme—if anything has gone wrong in the waste management program in the past, it is likely to do so again unless specific measures are adopted to prevent it.

The public tolerance for further mistakes seems to have worn very thin. The cost of future failures will be extremely high.

OTA has concluded that an integrated comprehensive commercial high level radioactive waste management program would contain six key elements.

First, a firm commitment in law to develop a regional system of mined geologic repositories on a realistic schedule; to accept waste from utilities beginning on a specific date by which the first repository is intended to be available; and to accept in the meantime limited amounts of spent fuel from those utilities that are unable for technical reasons to provide their own interim storage capacity.

This commitment by the Federal Government to have a permanent disposal system ready to begin receiving waste on a specific day in a specific year is in our opinion the linchpin of the policy. Without such an unambiguous national commitment there is simply no compelling reason to get the job done over the long time period that we are talking about. The remaining five elements are those we believe are necessary to make such a commitment feasible and credible.

The second element is the rapid development by the administration and approval by the Congress of a credible and binding management action program that spells out the technical and institutional actions and milestones that must be accomplished, the contingencies that must be planned for and the financial and managerial resources that will be needed to deliver on those commitments.

We believe that, next to congressional commitment to a specific target date, the development of a sound and widely accepted management action program showing precisely how the Federal Government plans to get there from here is the crucial next step in building public confidence that the job will get done safely and on time.

Third, creation of an institutional mechanism to insure that the financial and managerial resources needed to carry out the management action program will be available over the long time period required to fulfill the commitment, independent of competing short-term priorities of the Federal Government. One possible model would be an independent self-financing public corporation funded by direct user charges such as the TVA.

I would add that our thinking about the problem of financing waste disposal was greatly assisted by the cooperation of the Congressional Budget Office which prepared a staff paper on the subject for us.

Fourth, establishment of an oversight process which can assure the Congress, the directly affected parties, and the American public that the responsible agency will be held accountable for the safe, efficient, and timely implementation of the management action program, while at the same time providing the independence from the uncertainties of the annual Federal budget process that the agency will need to carry out its mission. Congressional approval of a detailed management action program to be implemented by an independent agency subject to annual oversight rather than to annual budget control could play an important role in balancing independence and accountability.

Fifth, development of a regulatory process that makes ample allowance for the first-of-a-kind nature of high-level radioactive waste disposal technology.

Finally, explicit provision in law of those measures, such as a formal role in repository siting decisions and perhaps impact compensation, that are needed to deal adequately with the basic concerns of the states that will be affected by the Federal waste management activities.

The acid test of the policy whose key elements I have just outlined or of any policy is its acceptability to all concerned parties. If it is unacceptable in whole or in part to any of the affected parties, so that any party is left with a strong incentive to thwart it or try to change it, then it may well suffer the same fate as past policies which, because they tended to favor one point of view or another, were swiftly and unceremoniously dumped as soon as people came to power who favored a different point of view.

The policy I have outlined assumes that the past failures of the waste management program stem in large part from the severe institutional and financial constraints that despite the best efforts of many able and hard-working people have continually hampered its operations.

The history of the Federal waste management effort strongly suggests that under the current institutional structure and financial arrangements the Federal Government cannot make a credible commitment toward the steady development under many different administrations and Congresses to come of a complex technological system by a specific date some 15 or more years away.

The policy I have described assumes that a long-term assurance of resources both of manpower and funds and an independent or at least a stable institution is essential to sustaining the expanded and relatively expensive program which will be necessary to meet a firm schedule over a very long period of time.

The technical and institutional elements of this policy are not only mutually supportive, they are inseparable. Unless it is carried out by an independent institution that does not have to spend most of 1 year worrying about funds for the next or about whether it is going to exist next year or what form it is going to take, unless it is carried out by an independent institution with assured and adequate funding, no comprehensive program that aims to follow a firm schedule over a long period of time is likely to have much credibility with the general public or with the utilities.

An independent institution with independent funding does seem the surest and perhaps the only way to guarantee that a comprehensive waste management program will be carried out from start to finish and on schedule.

Such an institution raises a crucial and difficult question: how to insure the congressional oversight and public accountability that a democratic society must demand of such an institution.

We do have some suggestions about how to balance independence and accountability. Our analysis suggests that it may be possible to gain support for creation of an independent institution with independent funding if there is substantial agreement in advance about precisely what it is going to do and how it is going to do it. This is the reason for inclusion of explicit legislated goals and a congressionally approved detailed management action program among the basic elements of a comprehensive waste management policy.

In summary, our overarching finding, based on a careful review of the history, is that comprehensive action by the Congress will be needed to get out of the nuclear waste stalemate. The history of nuclear waste policy is littered with attempts at partial solutions by policymakers who tried their best to use the limited levers under their direct control to break the logjam. The clear evidence is that not only do these efforts fail to work but they often make matters worse by further lowering the credibility of the Federal waste management effort. The nuclear waste management problem appears to be a nettle that, painful as that may be, must be grasped in its entirety if it is ever to be finally resolved.

This, Mr. Chairman, is in brief detail the key elements and reasons for a waste management approach that is designed to avoid the mistakes of the past and to gain the confidence of the technical community and the general public that the Federal Government can and will safely manage and dispose of high-level nuclear waste.

Clearly S. 1662 does embody many of the features that our analyses suggest are vital to successful waste management efforts, and in particular we think the funding provisions are of crucial importance.

We have more detailed comments of the key elements of that bill in our written testimony. I would be glad to answer any questions you may have.

[The prepared statement of Mr. Cotton and the staff working paper prepared by CBO follow:]

STATEMENT OF THOMAS A. COTTON, OFFICE OF TECHNOLOGY ASSESSMENT

Mr. Chairman, my name is Thomas Cotton and I am the project director of a study the Office of Technology Assessment is conducting of commercial high level radioactive waste management in the United States. I have been asked to present OTA's "views on the various aspects associated with nuclear waste management and disposal" as well as OTA's views on the bills being reviewed by this committee. Let me briefly describe some of the main conclusions that have emerged from OTA's study thus far.

The evidence is clear that not until about the mid-70's did the Federal government begin to devote substantial attention or resources to the problem of nuclear waste management. The waste management effort has, in general, been characterized by a number of fundamental ills, including: sharp and sudden shifts in policy; the low priority placed upon the program at the agency and departmental level; inadequate resources (both in money and people) from year to year; general institutional instability; and the failure to adequately address the concerns of states and others. As a result, there is today a widespread lack of confidence that the Federal government can or will manage high level radioactive waste safely and efficiently and at a rate and scale commensurate with projected levels of nuclear power generation. The deepest and most consuming doubts concern not so much the technology for disposal -- the disagreement there centers on the feasible rate of technology development rather than on the choice of technology -- but rather the institutional capacity of the Federal government to carry out, over a period of twenty years or more, the difficult and sustained effort required to both build and operate a disposal system capable of handling large amounts of high level radioactive waste.

In addition to these public doubts concerning the waste disposal effort as a whole, the utilities with nuclear reactors face two critical uncertainties: 1) as spent fuel continues to pile up, reactors are running out of storage space, and may have to shut down unless more storage space is made available on a timely basis; and 2) utilities face an open-ended responsibility for growing inventories of spent fuel with no idea when or how or at what cost that fuel will finally be disposed of.

To resolve both the public and the utilities' uncertainties about how, when and whether high level radioactive waste can and will be finally and safely disposed of is the goal that a successful waste management program must be designed to meet. The greatest single obstacle to such a program is the severe erosion of public confidence in the Federal waste management effort.

In citing the past flaws and failures of the waste management program, we do not mean to suggest that no significant progress has been made or that any burden of blame must fall upon the shoulders of the many dedicated and competent people who have carried out that program. The problem has not been the quality of the people involved, but rather the tasks they have been called upon to perform with what, until recently, were meager resources and very difficult circumstances. Indeed, it has been the hard work of the staff and laboratories at the Department of Energy, the Nuclear Regulatory Commission, the Environmental Protection Agency, the U.S. Geological Survey, and other agencies that has laid the firm groundwork for the commitment contained in the legislation that this committee is considering. Many of the necessary analytical tools and data that were only under development at the time OTA undertook its study are now ready to be applied to the task of developing a management action program.

When OTA began its study, we were encouraged one of the sponsoring committees and by OTA's Congressional Board to take a comprehensive view of the waste management problem and to identify, if possible, the sequence of decisions and actions which could lead to the development of an operational high level radioactive waste management system. During the three years we have devoted to the subject, we have sought and analyzed a wide range of views -- from the technical community, program personnel in the involved Federal agencies, the nuclear industry, the environmental community, state and local officials, and the lay public. As a result of that effort, and of the technical and institutional studies performed during the course of the assessment, we have identified what we believe to be the basic elements of an integrated commercial high level radioactive waste management policy that would be responsive to the key concerns of the affected parties. None of the individual elements of that policy are new. They have all been considered at one time or another. Some have been incorporated into bills introduced in Congress. Some have been, or are now, part of Administration policy. We believe, however, that the policy we will discuss forms a cohesive set of interdependent and mutually supportive elements which, taken together, could form the basis for the broad and stable consensus needed to break the current stalemate and get on with the job of radioactive waste management.

Other policies could conceivably achieve the same ends. However, we have concluded from our analysis that the integrated policy that we will outline is, in its main elements, capable of securing the credibility, stability, and broad support that are the essential ingredients for a successful radioactive waste management policy.

The elements of the policy we will describe have been selected on the basis of a single, simple principle: in waste management perhaps even more than in other matters, Murphy's Law is likely to reign supreme -- if anything has gone wrong in the waste management program in the past, it is likely to do so again unless specific measures are adopted to prevent it. And the public tolerance for further mistakes has worn extremely thin. The cost of future failure will be extremely high.

OTA has concluded that an integrated, comprehensive commercial high level radioactive waste management program would contain six key elements:

1. A firm commitment in law to develop a regional system of mined geologic repositories on a realistic schedule; to accept waste from utilities beginning on a specified date by which the first repository is intended to be available; and to accept, in the meantime, limited amounts of spent fuel from those utilities that are unable for technical reasons to provide their own interim storage capacity.

This commitment by the Federal Government to have a permanent disposal system ready to begin receiving waste on a specific day in a specific year, is, in our opinion, the linchpin of the policy. Without such an unambiguous national commitment, there is simply no compelling reason to get the job done. The remaining five elements are those that we believe are necessary to make such commitment both feasible and credible.

2. Rapid development by the Administration, and approval by Congress, of a credible and binding management action program that spells out the technical and institutional actions and milestones that must be accomplished, the contingencies that must be planned for, and the financial and managerial resources that will be needed to deliver on those commitments.

We believe that -- next to Congressional commitment to a specific target date — the development of a sound and widely accepted management action program, showing precisely how the Federal government plans to get there from here, is the crucial next step in building public confidence that the job will get done safely and on time.

3. Creation of an institutional mechanism to ensure that the financial and managerial resources needed to carry out the management action program will be available over the long time period required to fulfill the commitment, independent of competing short-term priorities of the Federal government. One possible model would be an independent, self-financing public corporation funded by direct user charges — such as the Tennessee Valley Authority.

4. Establishment of an oversight process which can assure the Congress, the directly affected parties, and the American public that the responsible agency will be held accountable for the safe, efficient, and timely implementation of the management action program — while at the same time providing the independence from the uncertainties of the annual Federal budget process that the agency will need to carry out its mission. Congressional approval of a detailed management action program, to be implemented by an independent agency subject to annual oversight rather than to annual budget control, could play an important role in balancing independence and accountability.

5. Development of a regulatory process that makes ample allowance for the first-of-a-kind nature of high level radioactive waste disposal technology.

6. Explicit provision in law of those measures — such as a formal role

in repository siting decisions, and perhaps impact compensation -- that are needed to deal adequately with the basic concerns of the states that will be affected by the Federal waste management activities.

The acid test of the policy whose key elements I have just outlined -- or of any policy -- is its acceptability to all concerned parties. If it is unacceptable in whole or in part to any of the affected parties, so that any party is left with a strong incentive to thwart it or try to change it -- then it may well suffer the same fate as past policies which, because they tended to favor one point of view or another, were swiftly and unceremoniously dumped as soon as people came to power who favored a different point of view.

The policy I have outlined assumes that the past failures of the waste management program stem, in large part, from the severe institutional and financial constraints that -- despite the best efforts of many able and hardworking people -- have continually hampered its operations. The history of the Federal waste management effort strongly suggests that, under the current institutional structure and financial arrangements, the Federal government cannot make a credible commitment toward the steady development -- under many different Administrations and Congresses to come -- of a complex technological system by a specific date some fifteen or more years away. The policy I have described assumes that a long-term assurance of resources, both of manpower and of funds, and an independent -- or at least a stable -- institution is essential to sustaining the expanded and relatively expensive program which will be necessary to meet a firm schedule over a long period of time.

The technical and institutional elements of this policy are not only mutually supportive -- they are inseparable. Unless it is carried out by an independent institution that does not have to spend most of one year worrying about funds for the next, or about whether it's going to exist next year or what form it's going to take -- unless it is carried out by an independent institution with assured and adequate funding, no comprehensive program that aims to follow a firm schedule over a long period of time is likely to have much credibility with the general public or with the utilities.

An independent institution with independent funding does seem the surest -- perhaps the only -- way to guarantee that a comprehensive waste management program will be carried out from start to finish and on schedule. But such an institution raises a crucial and difficult question: how to ensure the Congressional oversight and public accountability that a democratic society must demand of such an institution? We do have some suggestions about how to balance independence and accountability. Our analysis suggests that it may be possible to gain broad support for creation of an independent institution with independent funding if there is substantial agreement in advance about precisely what it is going to do and how it is going to do it. This is the reason for inclusion of explicit legislated goals and a Congressionally approved detailed management action program among the basic elements of a comprehensive waste management policy. We will discuss these at greater length later in our testimony.

In summary, our overarching finding, based on a careful review of the history, is that comprehensive action by the Congress will be needed to get out of the nuclear waste stalemate. The history of nuclear waste policy is littered with attempts at partial solutions by policy makers who tried their best to use the limited levers under their direct control to break the logjam. The clear evidence is that, not only do these efforts fail to work, but they often make matters worse by further lowering the credibility of the Federal waste management effort. The nuclear waste management problem appears to be a nettle that, painful as that may be, must be grasped in its entirety if it is ever to be finally resolved.

These, Mr. Chairman, are -- in briefest detail -- the key elements of, and reasons for, a waste management approach that is designed to avoid the mistakes of the past and to gain the confidence of the technical community and the general public that the Federal government can and will safely manage and dispose of high level nuclear waste.

I would now like to discuss some of the features of the legislation you are considering, in the framework of these key elements.

1. Commitment to explicit goals.

The legislation you are considering today does embody many features that OTA's analysis suggests are vital to a successful waste management effort. It would represent a large step towards resolving public concerns about whether the Federal government has the waste disposal problem in hand by making a firm commitment to the development of the most well-defined and extensively studied disposal concept -- mined geologic repositories. The OTA study concludes that such a commitment is consistent with the current state of knowledge, since the concept of geologic disposal has survived many intensive reviews without the identification of any insurmountable scientific or technical barriers to its successful implementation. Of course, many technical questions remain to be resolved, and design decisions to be made, before it can be implemented with confidence at an actual site. This bill rightly focuses attention on the many technical and institutional hurdles that must be passed before we can have a licensed, operating repository, and the importance of getting on with the job now.

This commitment to development of geologic repositories should also increase the confidence of nuclear utilities that an ultimate solution to their growing spent fuel problem is on the way. Nonetheless, it still leaves them with some uncertainty in planning for the interim spent fuel storage that they are expected to provide, since the bill makes no explicit commitment to a schedule for the Federal government to begin to accept spent fuel.

If a commitment were made to a credible schedule for beginning to accept waste at a final repository, it should considerably aid utility efforts to provide their own interim storage in the meantime, since it would remove a principal source of resistance to interim storage -- the concern that it would encourage indefinite deferral of a disposal system.

It is important to recognize that the commitment in this bill to a schedule for the technical and regulatory steps involved in taking a first candidate respository site through the licensing process will not necessarily assure that an operating repository will in fact be available at the end of the process. There is a very real possibility that the relevant agencies could meet every deadline specified in this bill, and still wind up at the end of the licensing process with a rejection from the NRC and no operating repository. There is, at this time, no technical consensus about how likely it is that any particular site that appears suitable for licensing at the end of site characterization will, in fact, survive the entire licensing process. For example, some experts believe that we can be certain of the ultimate licenseability of a site at the time an application for a construction permit is made; others believe that a considerable chance of rejection could remain at that point. Thus, the schedule in this bill for NRC decisions on the first repository site is not necessarily tantamount to a schedule for approval of a construction permit, and later, an operating license -- at least, not if the less optimistic view proves to be correct. While another site could be submitted if the first were rejected, that could mean a significant slippage in the repository availability date, which the public might well perceive as a major failure in the waste management program. Our analysis of the history of waste management suggests that the remaining margin of confidence could be seriously depleted by such an event.

The most straightforward way to reduce the risk of licensing rejection is to provide the time and resources necessary to carry, more or less simultaneously, more sites through the site characterization process and into the licensing process, which would ensure that backups are immediately available [illegible] first site considered proves to be unlicenseable. This potentially redundant approach might substantially increase the initial costs of developing the repository system. For example, the U.S. Geological Survey has estimated that it would cost about $1.8 billion through 1995 to characterize 26 sites, across the nation, adequately for submission of a license application. It would cost another $1 to $1.5 billion to carry a single additional site from that point through to an operating license. However, it appears certain that more than one site will eventually be needed anyway, so the effect on total waste management costs in the long run may be less significant.

In any case, direct financing through a small user charge on nuclear electricity or spent fuel discharges could provide more than adequate resources for a considerably expanded program, while having only a trivial effect on the cost of nuclear electricity. For example, the Department of Energy has estimated that it would cost about $15 billion (undiscounted) through 2010 to develop and operate a regional waste management system including an away-from-reactor storage facility and three repositories opening at three year intervals beginning in 1997. A fee of one mill per kilowatt hour on nuclear electricity (or about $200,000 per metric ton on spent fuel) would generate that level of revenues by the year 2000, thus providing ample resources for the more extended and redundant site screening, characterization and development process that may be needed to give high confidence that the required number of repositories would in fact be available on schedule.

If Congress wished to commit to a schedule for accepting spent fuel from utilities wishing to dispose of it, and to ensure that a repository would be available by a firm date, it may be prudent to select a conservative date to begin receiving waste, one that would allow for multiple site evaluations and for slippages in the licensing process. This could minimize the chance that an expensive independent storage facility may have to be constructed in order to deliver on the commitment if a repository is not available on schedule. Although we would defer to the judgments of DOE, USGS, and NRC in this regard, it appears to us that the schedule included in this bill is very optimistic, and leaves no margin for error or surprises of the sort that have plagued the waste management program in the past. Because of the low reservoir of goodwill and confidence that the Federal government still enjoys in this area, there may be serious consequences if a major milestone is missed, or the legislated schedule has to be relaxed, because it proves to have been overoptimistic. This could be particularly serious in the case of the earliest deadlines, which -- if missed or relaxed -- could very quickly undermine the credibility of the entire schedule at precisely the time when it is most important to rebuild confidence in the Federal waste management program. In contrast, a more conservative target date can always be tightened later if it proves feasible to do so, with no loss in public confidence.

Adoption of a conservative date to begin accepting spent fuel would not preclude an earlier target date for the first repository; in fact, a conservative program would probably require an earlier target date, with an adequate allowance for unforeseen slippages. While a detailed analysis by DOE would be needed to provide a firm estimate of a safe date for a commitment to accept spent fuel at a repository site, our analysis and discussions with experts in the field suggest that some time in the 1995-2000 time frame would be feasible -- provided that resources are available for an expanded site evaluation and licensing process.

A final question concerning the overall goals of comprehensive legislation relates to the question of whether or not you wish to have a regional disposal system -- with near-simultaneous development and operation of several repositories geographically distributed so as to minimize the costs and impacts of waste transportation -- as opposed to a centralized system in which one repository at a time is developed and operated until it is full. From the point of view of safety, there are at present no strong arguments favoring either approach, since at least several repositories will probably ultimately be needed just for the reactors that are now operating or under construction, and there is no a priori reason to believe that licenseable sites cannot be found nearer to the bulk of nuclear power generation than most of the sites that are under consideration now. The OTA analysis suggests that there are several potential advantages of a regional approach which could make it more broadly acceptable than a centralized one:

First, it would be more equitable, both because repositories would be located nearer to the source of waste generation, and because fewer communities would be affected by transportation. Analysis performed by Oak Ridge National Laboratories for the National Academy of Sciences clearly shows that many states in the Midwest and West, which would be practically unaffected by waste transportation in a regional repository system, would become major transportation corridors in a centralized one, since it appears fairly likely that the first repository will be in the West (See figures 1 and 2).

Second, a regional system, with several repositories operating simultaneously, could be less vulnerable to the effects of accidents or other interruptions than would a centralized system. Similarly, setting as the goal of the repository development and licensing program the development of two sites, rather than one, could reduce the potential political costs of delays or problems that are associated with the all-the-eggs-in-one-basket focus on a single site of a centralized system.

Finally, a regional system could substantially reduce transportation costs. The Oak Ridge study just cited showed that a centralized system with a single repository in the West could add nearly one billion dollars in transportation costs by the year 2004 compared to a regional system that included several sites east of the Mississippi (See Tables 1 and 2). Of course, the transportation cost savings of a regional system would be offset to some extent by the additional front end costs required to locate and develop one or more suitable sites in the East, although at the present time no integrated analysis is available to show which approach is more cost-effective in the long term when all costs and benefits (such as system reliability) are taken into account. However, it is clear that the initial costs of developing a regional system would be higher, which can be expected to lead to strong budgetary and bureaucratic pressures to continue to expand the first repository that is licensed, and to defer the capital costs of developing a second one until the first has been filled. Even if the Federal government is responsible for waste transportation, so that it has to take into account transportation costs as well, short-term budgetary decisions would be dominated by the high additional capital costs of building a second repository, rather than by the relatively small annual savings in transportation that would result some years later. For this reason, if the Congress wishes to guarantee that a regional system will be developed, it may need to commit in law to having a second, regionally sited, repository available within some short fixed interval -- say five years -- after the first is operational. In this way, the necessary actions to develop a second repository on schedule would be factored into the management action program, and the additional costs included in the disposal fee, so that the extra resources will be available as needed.

While section 408 of S.1662 would require consideration of transportation costs and impacts in selecting a site for an additional repository, there is no explicit commitment to the development of such a site; as noted above, without such a commitment there will be strong budgetary pressures to defer the costs of developing a second site.

If the Congress does not wish to make this commitment until a more thorough comparison of the costs and benefits of regional and centralized systems is available, it could require the Administration to prepare such a comparison as a basis for a final decision within several years. If preparation of a management action program for Congressional approval is required, as discussed below, it could contain such a comparison and an analysis of the additional efforts that would be involved to develop a regional system; and a Congressional choice could be made in the process of approving the management action program.

2. Management action program.

a. Importance

A major contributor to the credibility of any commitment to a schedule for accepting spent fuel or waste at a repository site would be the rapid development in the next several years of a management action program that would integrate the policies and programs for interim storage, repository RD&D, and commercial repository system construction and operation. In order to ensure that the goals and milestones of the waste management program are achievable and that the resource needs are reasonably estimated, the management action program would need to identify the major potential sources of technical and institutional failure, provide measures that minimize the likelihood that these failures will occur, and include contingency plans for dealing with those failures that do occur. In contrast to this approach, the Federal waste disposal plans prepared to date appear to assume that every milestone identified in the nominal schedules will be achieved successfully without any unforeseen obstacles or failures. Yet such obstacles and failures have occurred time and again in the waste program and have led to so many slippages in schedules that any long term schedule is now highly suspect. This committee may therefore wish to consider incorporating into S.1662 the requirement for preparation of such a management action program.

Development of such a management action program may be one of the most important things that could be done in the near term to increase public confidence in the Federal waste management program. It could also allow the waste management legislation to be somewhat simplified and streamlined by focusing on the ultimate objective -- for example, to have at least one licensed repository operational in time to implement a commitment to accept spent fuel from utilities on a fixed date -- and leaving to the waste management agency the detailed identification of the programmatic steps and milestones needed to achieve that objective. If this management action program were then approved by Congress, it could be just as effective in directing the waste management program as would incorporation of a detailed schedule of intermediate steps in legislation, and would place the full responsibility for the feasibility of the schedule on the implementing agency. It could also avoid the potential loss of time and credibility that could result if early legislated milestones proved to be infeasible and had to be changed.

b. Role of Test and Evaluation facilities

A particularly important part of a management action program would be an integrated research and development plan that would clearly identify the remaining technical questions which need to be answered to ensure availability of a geologic repository by the desired target date, and which would lay out a detailed schedule of the activities needed to address these questions. Specifically, this plan would include a description of the research and development activities that will be conducted at demonstration or test and evaluation facilities to resolve specified technical uncertainties, and the role of such facilities in the overall development process.

It appears possible, if not likely, that a research and development plan capable of creating high confidence that a licensed geologic repository could begin full scale operations on a specified date would require a more accelerated and extensive program than that contemplated in the Test and Evaluation facility provisions of this bill. If the Department of Energy did no more than meet the schedule that has been proposed, and conducted the described activities only at the single site that is expected to be a repository, the data obtained might come too late to be of much value in the licensing process or in the design of the repository, since the facility is not scheduled to begin operations until the construction permit has been granted and repository construction is initiated.

Broadly speaking, there are two classes of scientific and engineering data that can be obtained from the sort of test and evaluation facility provided for in this bill: those related to the projected ability of the repository system to provide long term waste isolation, and those related to the logistical problems of handling and emplacing waste at high operational rates. To the extent that a test and evaluation facility is intended to provide data about repository performance that would help in the licensing process, it may be useful to obtain the same data during the site characterization process in all of the sites being characterized, rather than only after site characterization and only from the one site selected for the first license application. This would facilitate selection of the site that had the best chance of being licensed, and would reduce the delays that could result if the first choice site were rejected for any reason, by providing more and earlier data on backup sites. In addition, it could greatly reduce the concerns that conducting extensive test and evaluation activities at only one site might prejudice the site selection and licensing process. Of course, conducting such activities related to repository performance at all sites being characterized would be more expensive that the proposed program. However, the increased cost should not result in more than a marginal increase in the full cost recovery fee to the utilities, and — to the extent that the fees are collected in advance of the expenditures -- financial resources should not be a significant constraint on the scope of the technical program.

The recent focus on the role of a test and evaluation facility in providing data on the ability to accept, package, and emplace waste at operational rates has been very useful, since the sheer logistic questions involved in operating a waste disposal system at commercial scale had not been given much recognition earlier. For example, simply to load a repository fast enough to keep up with the rate of spent fuel generation in the year 2000 it would be necessary to package, lower into the repository, and emplace about one canister every hour, twenty-four hours a day, 365 days a year. While there is no technical reason to believe that a system cannot be designed to do this, we have no experience at handling radioactive materials at more than perhaps one percent of that rate, so that it is almost imperative to obtain some hands-on experience at a pilot scale before attempting to design and construct a full-scale facility. It would be awkward at best to build a repository and discover that in practice it can only be loaded at half the design rate -- after it is too late to change it.

One function of the proposed Test and Evaluation facility is to provide such experience. However, according to the schedule in the bill, the facility would not begin operation until after a construction permit had been granted, at which time a design would already have to haye been developed; little, if any, data would be available by the time repository construction began. If the tests revealed significant inadequacies in the design that required substantial revisions, it could lead to significant delays and cost overruns that could perhaps be avoided if the data were available before a design were submitted for licensing.

The reason for the delay in the availability of this logistics data is the requirement that the Test and Evaluation facility be constructed at candidate repository site, preferably the one that is to be submitted for the first license. A principal reason given for this requirement is that it would avoid the higher program costs that would result from the duplication of construction activities involved in performing these tests at another site not intended to become a repository. However, these additional costs should be balanced against the likelihood that the necessary data could be obtained years earlier -- in time to contribute to the repository design in the first license application -- if a suitable test site could be selected quickly and facility design and construction initiated soon, rather than waiting until three candidate repository sites had been partially characterized. It appears unlikely that this could be done easily unless a site other than a potential repository site were chosen, because of concerns that early selection of such a site for test purposes could prejudice the later site selection and licensing process.

While it is clear that the most valuable data concerning potential repository performance needs to be gathered at candidate sites themselves, no evidence has yet been presented to show that logistical data concerning waste handling and emplacement is highly site specific, and that it could not be obtained equally well from a test and evaluation facility constructed at a site intended only for that purpose. (Some data concerning the ability to drill the holes in the repository floor to accept the waste canisters, will depend upon the specific medium — salt, granite, etc. — for the repository, but not the specific site; and in any case there are waste package designs under development that may allow the packages simply to be stacked in the repository rooms rather than emplaced in the holes in the floor.) Thus it is not clear that the benefits of conducting these tests at a candidate repository site would offset the delays that would result if it is necessary to wait until candidate sites have been identified and characterized to the point that the one having the best chance of being licensed can be clearly determined.

Concerns that early unlicensed activities involving emplacement of waste at depth in a test site could short circuit the regulatory process and lead to pressures for expansion of the site into a repository, even if it had not originally been selected for that purpose, could be reduced by selecting a site which is clearly not suitable for a repository. This should be possible as soon as site selection criteria have been developed, since they should also specify those factors which would lead to exclusion of a site from consideration as a repository. Since proximity to national defense activities may constitute one such exclusion criterion, it is possible that the Climax facility at the Nevada Test Site would be appropriate for this purpose. A logistics test and evaluation facility could probably be developed there within four to five years, since the Department of Energy is already conducting tests with spent fuel there using existing facilities for packaging spent fuel and emplacing it in a near-surface gallery mined in the Climax granite formation, as well as in drywell storage on the surface. The major additional work required would be construction of a test facility at repository depth, and modification of the existing packaging facility, or construction of a new one, to enable a test of spent fuel receipt and packaging at expected operational rates.

Such a test facility at the Nevada Test Site or elsewhere could be designed to integrate logistics tests for both geologic repositories and monitored, retrievable surface storage. Developing the packaging and handling technology that would allow the packaged waste to be emplaced either in surface storage or in a repository could help ensure that waste could be accepted at operational rates at a repository site on the target date even if there were delays in full-scale loading of the repository — either for technical reasons or because an extended period of surface cooling prior to emplacement proved to be desirable. An integrated storage and disposal test and evaluation facility would also allow development and demonstration of the capacity to remove waste from a repository at a rate comparable to the emplacement rate -- a proposed NRC requirement — and to place it into temporary surface storage if that should prove necessary for any reason. This should help build confidence that initial emplacement of waste into a repository is not an irreversible step.

Since substantial quantiites of spent fuel would be needed for pilot scale hot tests — perhaps 1000 to 2000 metric tons if both surface and underground emplacement are tested -- such a facility could also be used to provide the limited amount of interim Federal storage capacity that would be needed to deliver on a commitment that no reactor would have to shut down because of technical inability of the utility to provide its own interim storage on time.

Because it appears clear that it would be valuable to have logistics experience before developing a final repository design for a license application, it is probably not necessary, and perhaps not possible, to wait for development of a detailed management action program before proceeding with an integrated storage and disposal logistics test and evaluation facility, if it is to be started quickly at a site not intended for development into a repository. (In fact, it does not appear desirable or necessary to defer any elements of the ongoing DOE repository development activities pending development of such a program, since there is little time to be lost if a firm target date -- even a conservative one -- is to be met.) The function of an integrated management action program is to identify those additional activities that would be required to meet the goal, and to show how all necessary technical and institutional actions will be coordinated to ensure that the program can and will be accomplished on time. It can thus be developed concurrently with ongoing activities.

Because such a test facility could require substantial additional early expenditures above those currently contemplated in DOE's waste management program, it may be desirable to explicitly authorize its construction to help ensure that the necessary funds are made available on time.

3. Adequate and independent resources.

a. Funding

Even with a feasible goal and a credible implementation plan and schedule, the credibility of a Federal commitment to a long-term waste management program will depend upon the degree of confidence that adequate funds will in fact be provided as needed over a period of decades to carry out that plan. We conclude in our study that the question of annual funding over the long-term is central to the resolution of the waste management problem.

(Our thinking in this area was greatly helped by the cooperation of the Congressional Budget Office, which prepared a staff paper on the subject for us; I offer a copy of that paper in our submission for the record.) By proposing that the program be financed directly by a direct surcharge on nuclear-generated electricity, this legislation takes a major step towards removing funding as a constraint on the feasible technical program. Detailed comments about the proposed fee collection mechanism will be included in our extended submission. I would like to focus these remarks on one central point — the fact that the predictability of the program depends upon the predictability of the annual expenditures from the waste management fund, not simply the predictability of the revenues going into that fund. By retaining a degree of Congressional control over annual program expenditures, S.1662 leaves open the possibility that, in a period of pressures to balance an increasingly tight Federal budget, some of the expenditures required to assure steady progress on the waste management schedule might be deferred or eliminated -- thereby jeopardizing the long term goal. In short, it appears to us that there is an inherent conflict between a stable commitment to a long term fixed schedule for a complex technical project such as waste disposal on the one hand, and a high degree of external annual budgetary control on the other.

As emphasized earlier, striking a balance between the independence that appears to be needed to ensure steady and predictable progress towards timely achievement of a long-term goal, and the degree of oversight and control required in a democratic society, may be one of the most difficult challenges involved in devising a comprehensive waste management program. Congressional commitment to explicit goals for waste management, and subsequent approval of a detailed management action plan, could provide a substantial degree of

Congressional control over the program while at the same time allowing the management agency full discretion over annual expenditures from the revenues generated by the fees.

b. Management.

Availability of adequate management resources is as important as availability of adequate funds. Historically, the nuclear waste management program of the Federal government has had to compete for money, manpower, and policy-level attention with other areas of nuclear research and development that were seen as more pressing and, often, more interesting. While there have been improvements in the last 4-5 years, it is not clear that in this period of sharp cutback in Federal employment, we can be confident that over the long run sufficient management resources will be available to efficiently and effectively handle the more demanding program laid out in this bill. In this regard, I would note that recently, for reasons of management efficiency, reprocessing research was added to Deputy Assistant Secretary Meyers' other responsibilities, with the result that there is now no single policy level individual at the Department of Energy who can devote 100 percent of his attention to the waste management program.

In the long term, the problems discussed above could potentially be dealt with by creation of a public corporation as has been suggested by a number of analysts of the waste management problem. Some such structure for the waste management agency would be consistent with greater degree of discretion over its annual expenditues. It would also allow much greater flexibility in hiring and firing, and in offering both rewards for performance and penalties for non-performance. There are many possible models for such a public corporation. One is the Tennessee Valley Authority, which has direct control over the annual expenditures from the funds generated by the sales of electricity, although its budget is shown as part of the Federal budget. Congressional influence is exercised through annual oversight of its activities, direct control of TVA's debt ceiling, and appointment and confirmation of its Board of Directors.

In summary, we have concluded that the institutional arrangements for both program funding and management may set the basic limits on the credibility of any long term waste management commitment to a fixed schedule. However, alternatives to the institutional status quo -- management as a typical R&D program with annual appropriations -- have not been studied with anywhere near the degree of thoroughness as have the techical options, so that major changes at this point may be premature. In addition, it does not appear necessary to resolve those issues now in order to set in place a long term technical waste management program. At the same time, it may be important to take action now to establish a process to ensure that the institutional issues will be dealt with in a timely manner.

We would like to suggest for your consideration the option of requiring that the Administration prepare — in addition to a management action program -- an institutional implementation plan that would present and evaluate several alternatives to the current funding and management structure. These alternatives could be reviewed by Congress at the same time as the technical plan, and a choice made in the context of a more detailed understanding of the magnitude of the management effort required to achieve the objectives established in this legislation.

In the near term, we would suggest serious consideration — either by Congress or the Administration -- of interim measures that could stabilize the waste management organization at an appropriate policy level, insulate it from competition with other nuclear policy areas, and provide the degree of central integrated planning and management capability that will be needed to assure that a long-term Federal commitment can in fact be carried out on schedule. It may be particularly important to stabilize and insulate the waste management organization now, as insurance against the possibility of a period of institutional uncertainty and delay that could occur if the Federal energy activities are reorganized again, as has recently been proposed. This could be accomplished, for example, by establishment of the waste management organization as a separate office headed by a Presidential appointee reporting directly to the Undersecretary of DOE. This would be distinctly different from the present arrangement, in which the Deputy Assistant Secretary responsible for radioactive waste management reports to the Assistant Secretary for nuclear research and development. Long-term stability could be enhanced if the appointment were for a fixed renewable term -- say 9 years as is the case for TVA directors -- rather than for the length of an incumbent administration.

5. Regulatory process.

An independent regulatory process is seen by many as perhaps the principal means of assuring the long term safety of Federal waste disposal operations. This is in large part due to the fact that confidence that a geologic repository will adequately isolate radioactive waste over a period of tens of thousands of years will be based solely on human judgments about long term projections of performance, rather than on direct observations of that performance. Thus our confidence must ultimately rest in the independence and objectivity of those who make those judgments. For this reason, many people feel strongly that in dealing with a first-of-a-kind problem such as high level nuclear waste disposal in general, and the first geologic repository in the world in particular, it is crucial to ensure an active, independent and flexible role for the Nuclear Regulatory Commission in the repository development process.

In this regard, the proposed accelerated schedule for the initiation and completion of the licensing process may raise several risks that could offset to some extent the potential time savings. First, it may adversely affect perceptions of the integrity of the licensing process, which could weaken confidence in the waste management program and create opposition and challenges which could ultimately lead to delays. For this reason it appears unlikely that an accelerated licensing schedule will be able to achieve a broad basis of public support, since it has so far proved impossible to gain approval of an accelerated licensing process even in the case of nuclear reactors, where we already have an extensive base of experience with the technology and licensing process. Second, the accelerated licensing schedule may also increase the likelihood that the NRC decision on the first site will be unfavorable. The earlier the licensing process is initiated, and the sooner decisions must be made, the less data and analysis will be available to provide a basis for confidence that the proposed site can meet regulatory standards. Since this will be a first-of-a-kind facility and a first-of-a-kind regulatory decision, it may be prudent to allow adequate time to work out the unforeseen problems that are almost certain to occur in the licensing procedure, and to provide a very thorough basis of data and analysis before the first formal decision must be made.

For the same reasons, it also appears important to allow sufficient time to work out the regulations themselves. Of course, the desire to make final decisions about the regulations is understandable, since history clearly shows that the lack of formal safety standards has been an impediment to progress. The imminent publication of the EPA release criteria has been expected for the last three or four years, yet the draft of the proposed technical criteria has not even been published for discussion. Those responsible for developing the waste disposal system can rightly complain that it is very difficult to design a technology when one is not sure exactly what performance standards it will have to meet.

However, the situation is not quite as bad as it may seem, since the EPA proposals have been widely circulated and discussed unofficially during the last year, and the NRC's proposed technical regulations for implementing those criteria were recently officially published for comment -- so that the Department of Energy knows very well the direction in which the regulations are moving, and can orient its program accordingly. For this reason, although it is very important that the proposed EPA criteria be officially published for discussion quickly, there may be less urgency about the timing of final action by EPA or NRC. In fact, there may be some disadvantages to the very tight schedule for final action proposed in the legislation. In the first place, it is not clear that it would even be possible for EPA to act as quickly as proposed -- and a failure to meet the very first deadline in the schedule would hardly increase confidence in the Federal waste management effort.

In addition, premature decisions could lead to locking in criteria and regulations that could cause problems and perhaps require revisions. That in turn could lead to delays and cost overruns if repository designs had to be changed, and perhaps to an appearance of confusion and compromised integrity of the regulatory process. For example, there are serious disagreements in the technical community about both the EPA's and NRC's proposed technical criteria. It appears unlikely that these can be readily resolved in the time frame contemplated in this bill -- if for no other reason than that both agencies may need to perform time-consuming revisions of the analysis underlying their proposals to take into account the recently revised estimates of waste toxicity.

As an alternative to the accelerated schedule in the bill, you may wish to consider the option of requiring quick publication of EPA's draft criteria for discussion, and then requiring and funding an extensive and coordinated public review of both the EPA and NRC proposals, with final publication to occur in 1.5-2 years, prior to completion of the management action program. In addition to ensuring that major problems are detected and avoided before final publication, an extensive public review could also serve to build public understanding of the reasons that many in the technical community, and in the regulatory agencies themselves, are confident that an acceptably safe geologic disposal system can in fact be constructed. It could provide an excellent opportunity for a broad public debate, and a final resolution, of the question of how safe is safe enough -- a question which is unprecedented and precedent-setting in the case of radioactive waste disposal because of the extremely long time periods for which the standards apply. A satisfactory resolution of this question would allow the efforts of all concerned to be devoted entirely to the technical question of how best to meet generally accepted standards, rather than to continued philosophical arguments about the acceptability of the standards themselves.

6. State concerns.

States have several basic concerns about Federal radioactive waste management activities:

1. The potential effects on the public health and safety of accidental releases of radioactive material from waste management facilities or from the transportation of spent fuel or high level waste;

2. Possible non-radiological. socioeconomic impacts such as the costs of having land taken off the tax rolls and increased demands on state and local services;

3. The possibility of inequities in the distribution of radioactive waste -- the fear, for example, that a state will bear more than its fair share of the costs of dealing with what is seen as a nationwide problem.

The basic concerns of states have been exacerbated by their generally low opinion of Federal competence and responsiveness in waste management activities. In particular, some states fear that considerations other than technical criteria for safety will play an unwarranted role in Federal siting decisions.

A last consequence of low Federal credibility is what may be called the "foot in the door" problem: the concern that if any waste management facility is sited -- even a small research facility -- the Federal government will seek to avoid fighting new siting battles and to save money by attempting to expand that facility's operations, eventually creating a _de facto_ repository on that site. Such a sequence of events would potentially jeopardize both the safety and equity of radioactive waste siting.

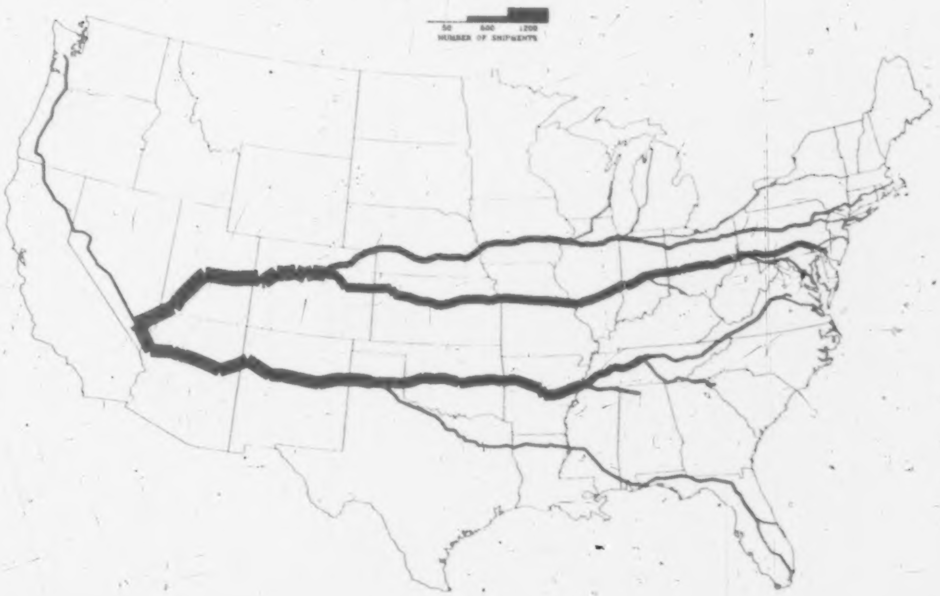
State concerns may be lessened by several measures, which may be put into the management action program, negotiated between states and DOE, or legislated directly by Congress. These include:

- -- provisions for monitoring and emergency response for waste shipments and facilities;
- -- provisions for compensation for non-radiological impacts;
- -- provisions for state involvement, including mechanisms for resolving state concerns.

Many measures directed at technical program and institutional management also bear on state concerns, such as regional siting requirements, stable and assured funding, and a stable or independent agency focused on radioactive waste management.

FIGURE 1

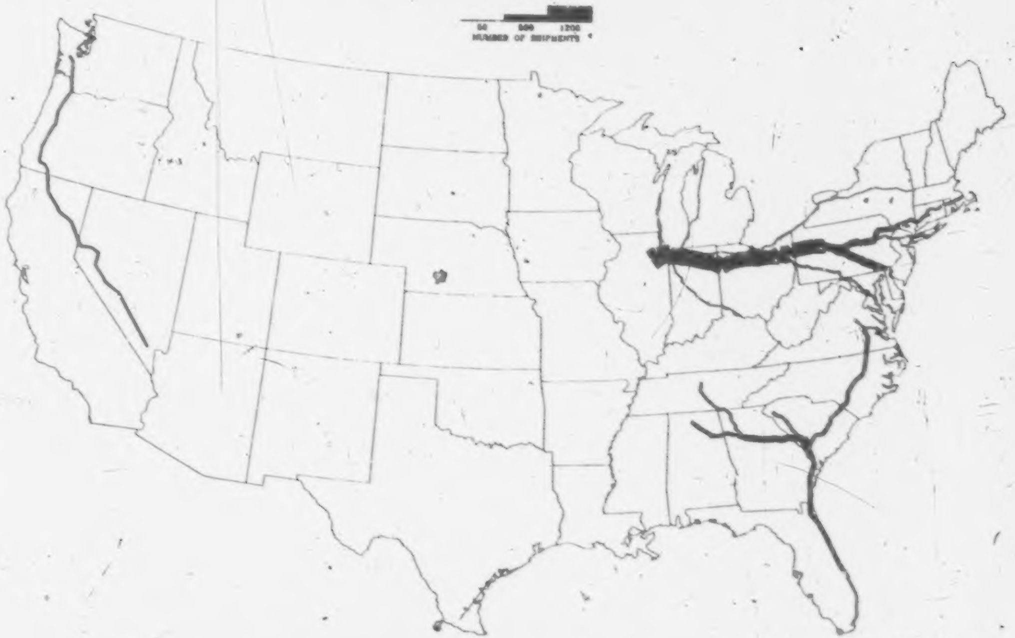
PROJECTED ANNUAL SPENT FUEL SHIPMENTS TO A WESTERN STORAGE SITE IN 2004
BASIS: REACTORS WITH TRUCK SERVICE ONLY
(FOR DEMONSTRATION PURPOSES ONLY)



SOURCE: OAK RIDGE NATIONAL LABORATORIES,
PREPARED FOR THE NATIONAL ACADEMY OF SCIENCES
COMMITTEE ON RADIOACTIVE WASTE MANAGEMENT

FIGURE 2

PROJECTED ANNUAL SPENT FUEL SHIPMENTS
TO REGIONAL STORAGE SITES IN 2004
BASIS: REACTORS WITH TRUCK SERVICE ONLY
(FOR DEMONSTRATION PURPOSES ONLY)



SOURCE: OAK RIDGE NATIONAL LABORATORIES,
PREPARED FOR THE NATIONAL ACADEMY OF SCIENCES
COMMITTEE ON RADIOACTIVE WASTE MANAGEMENT

Table 1. Transportations costs of shipping spent fuel to a single storage facility using both rail and truck modes

Year	Southeastern facility cost ($\$ \times 10^6$)	Gulf Coast facility cost ($\$ \times 10^6$)	Western facility cost ($\$ \times 10^6$)
1986	2.2	3.2	7.2
1987	5.8	7.8	16.5
1988	5.4	7.6	15.0
1989	13.3	17.0	34.1
1990	14.1	16.9	30.8
1991	14.0	16.7	28.9
1992	23.6	27.3	47.9
1993	25.5	28.8	53.1
1994	28.4	29.8	54.6
1995	41.8	44.9	79.2
1996	48.4	49.7	87.8
1997	48.8	51.2	90.7
1998	61.3	63.8	109.5
1999	72.8	75.5	130.3
2000	69.7	72.4	125.6
2001	90.1	92.6	157.7
2002	91.1	92.9	156.0
2003	92.7	93.5	155.9
2004	101.7	102.9	177.4
TOTAL	850.7	894.5	1558.2

SOURCE: OAK RIDGE NATIONAL LABORATORIES,
PREPARED FOR THE NATIONAL ACADEMY OF SCIENCES
COMMITTEE ON RADIOACTIVE WASTE MANAGEMENT

Table 2 Transportation distances and costs of shipping spent fuel to regional facilities using rail and truck casks

Year	Distance (mile x 10^6) Rail	Distance (mile x 10^6) Truck	Cost ($ x 10^6)
1986	<0.01	0.15	1.8
1987	0.01	0.54	5.3
1988	0.03	0.43	5.2
1989	0.03	1.05	11.1
1990	0.05	0.93	10.8
1991	0.07	0.84	10.9
1992	0.09	1.26	16.8
1993	0.13	1.26	19.2
1994	0.15	1.01	19.5
1995	0.22	1.53	28.3
1996	0.29	1.70	33.8
1997	0.32	1.65	35.0
1998	0.36	1.98	41.9
1999	0.46	2.43	51.4
2000	0.48	2.29	50.3
2001	0.61	2.45	62.4
2002	0.60	2.72	63.0
2003	0.65	2.49	63.9
2004	0.68	2.94	70.9
TOTAL	5.24	29.65	601.5

SOURCE: OAK RIDGE NATIONAL LABORATORIES,
PREPARED FOR THE NATIONAL ACADEMY OF SCIENCES
COMMITTEE ON RADIOACTIVE WASTE MANAGEMENT

FINANCING NUCLEAR WASTE DISPOSAL

Staff Working Paper

May 1981

The Congress of the United States
Congressional Budget Office

PREFACE

Although the nuclear age is more than three decades old, nearly all of the country's high-level commercial radioactive waste remains in temporary storage. Further delay in establishing a radioactive waste disposal system may limit the future use of nuclear power. On the other hand, moving too quickly on any particular strategy may create unnecessary hazards. The Office of Technology Assessment (OTA) is studying radioactive waste management and disposal strategies in response to increasing Congressional and public concern. The Congressional Budget Office (CBO) has worked with OTA in analyzing the federal role in financing nuclear waste disposal programs. This paper addresses the issues involved in distributing the costs of nuclear waste disposal and the options available to the federal government for collecting fees and managing the revenues. In keeping with CBO's mandate to provide objective analysis, this working paper offers no recommendations.

The report was prepared by Barry J. Holt of the Natural Resources and Commerce Division, under the supervision of Raymond C. Scheppach. Deborah L. Vogt and Dorleen Dove typed the numerous drafts, and Patricia H. Johnston edited the manuscript.

Alice M. Rivlin
Director

May 1981

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SUMMARY

Every year, one-fourth to one-third of the fuel that powers nuclear generators must be replaced. Although reusable uranium and plutonium could be recovered from this "spent" fuel through a technique called reprocessing, commercial reprocessing efforts have to date been technically and economically unsuccessful. Furthermore, once separated, the plutonium could be diverted for nuclear weapons use. Consequently, as part of the U.S. nuclear nonproliferation policy, the Carter Administration indefinitely deferred commercial reprocessing. Thus, commercial spent fuel has become high-level radioactive waste which must be safely managed.

The Atomic Energy Act of 1959 (P.L. 83-703), which authorized the commercial development of nuclear energy, and Federal Regulation 10CFR50, require disposal of nuclear waste in a federally owned facility. Prior to final disposal, utilities are primarily responsible for storing the waste. Since spent fuel cannot be reprocessed and federal repositories will not be available for at least 10-15 years, utilities face storage capacity constraints, which could force some reactor shutdowns.

The 97th Congress will likely consider legislation both to provide federal storage facilities to alleviate utility capacity constraints and to hasten repository development. While the federal responsibility for final disposal is clearly established, the role the federal government will play in providing storage facilities and in financing nuclear waste disposal still needs to be determined. Only the disposal aspect is considered in this paper.

One major financing issue facing the Congress is deciding who shall pay for nuclear waste disposal. About 7,000 metric tons of commercial spent fuel currently rests in storage. An additional 20-40 metric tons moves into storage annually from each of the about 70 domestic operating power plants. The ultimate disposal of this waste is now estimated to cost about $100,000 per metric ton, which, if added to the consumer's average price of electricity, would result in an increase of about 2 percent. Nevertheless, only when utilities know the total costs of power production can they make investment decisions efficiently. Arranging payment of disposal costs, though, is complicated by timing factors. The primary benefits of electricity generation--and therefore, spent fuel production-- generally accrue to consumers near the time of power generation. The costs of disposal, however, are not borne until many years later, so any costs not accounted for and collected at the time of electricity generation will be transferred onto future consumers.

One possible role for the government, then, is to bridge this timing gap. By setting and collecting disposal fees and by managing the funds, the government could establish a more certain operating environment to allow better utility planning, assure an equitable and efficient distribution of the direct and indirect costs of nuclear waste disposal, and protect the federal budget from large, unanticipated expenditures. Decisions facing the Congress would then center on the mechanisms for collecting disposal fees and the budgetary treatment of such revenues.

FEE COLLECTION

Disposal fees could be established and collected at any one of various points in the nuclear fuel cycle--uranium enrichment, fuel fabrication, electricity generation, spent fuel removal from reactors, or delivery to the federal repository. Two primary options would impose either a mandatory tax-like assessment, based on projected fuel discharges, or a voluntary user-type fee, at the time of repository use. In choosing between the mandatory assessment or the user fee, the Congress will need to consider the degree of certainty each creates for utility planning and operation, and the assurance each provides for generating revenues sufficient to cover the total costs of disposal. In general, the voluntary, use-based fee would provide utilities with more operational discretion than a mandatory assessment. Concomitantly, the voluntary fee would provide the government with an unpredictable revenue stream and possibly insufficient revenues. On the other hand, a mandatory assessment would provide less utility discretion, but a more predictable revenue stream.

In either case, certainty for utilities and assurance of sufficient revenues are most sensitive to how and when adjustments in the fee are made. The greatest certainty for utilities--and the easiest passthrough of costs to consumers--would be achieved with a fee established as early as possible. Early fee collection, however, would provide less assurance to the federal government of sufficient revenues, since the estimated costs of the disposal program will remain highly uncertain until the facility nears completion.

To cover any additional costs, two approaches could be used. The first, a "reach-back" provision, would reassess previous users. Alternatively, the fee could be adjusted periodically, with the new rate charged to all users at the time it is imposed. Both methods would assure ultimate recovery of total costs. The periodically adjusted, one-time fee would provide some near-term planning certainty for utilities, but would make long-term planning difficult. A reach-back provision would leave utilities vulnerable to unanticipated costs. If, however, the government were to set limits on the amount of later assessments, it could provide a more stable, long-term operating environment, while recognizing that the government might be responsible for some cost increases.

These adjustment mechanisms reflect the likelihood of initial underestimation of costs and future cost overruns. The probability of such problems arising might be reduced by using the high end of the range of cost estimates or by setting higher fees initially. This would, however, depend on a determination that cost overruns and unanticipated costs were a more likely or more serious problem than current overpayments. Thus, a high mandatory fee, with a federally limited reach-back provision, might provide utilities with a reasonably certain operating environment and assure an appropriate level of revenue generation.

FUNDING MECHANISMS

The Congress will also have to decide how to treat the fees within the federal budget. The budgetary treatment should provide certainty that the funds will be available and spent when needed, but allow for continued Congressional budgetary and policy control. The fees could be deposited in the general fund, or earmarked and deposited in a trust fund. Alternatively, a revolving fund could be established, which would recognize and treat the disposal program as a business-like operation.

The Congress maintains the highest level of control over federal funds that are not earmarked. Since such funds are subject to the annual appropriations process and its associated pressures, however, this method would provide little assurance that the funds would be spent for their intended use. Trust funds, on the other hand, could provide some insulation from the annual decision process, but in doing so take away some degree of Congressional control. Thus, a revolving fund, in which the receipts are earmarked, but without the restrictions of a trust agreement or statute, might provide an appropriate mix of Congressional control and security of funding.

CHAPTER I. INTRODUCTION

Although the commercial nuclear industry has been operating for nearly 30 years, questions concerning the disposition of its nuclear waste--both interim storage and ultimate disposal--remain unanswered. Decisions on waste disposal become increasingly pressing as the stocks of waste grow.

Most commercial high-level nuclear waste is produced by electric utilities, which must replace one-fourth to one-third of their enriched uranium fuel rods annually. While it is technically possible to reprocess this "spent" fuel to recover the useful uranium and plutonium, commercial attempts have to date been unsuccessful. Moreover, because plutonium is also a basic ingredient of nuclear weapons, President Carter indefinitely deferred commercial efforts as part of his nuclear weapons non-proliferation policy. Nor can utilities send the spent fuel to a disposal facility. Although the federal government is responsible for providing repositories, none is expected to be available for at least 15 years. Currently, then, utilities must continue to store the spent fuel at reactor sites in facilities that were intended only for short-term use. As reactors continue to generate electricity and produce spent fuel, utility storage capacity becomes strained, threatening continued reactor operation.

Although the Carter Administration proposed establishing a federal storage facility as early 1977, none has yet been built. The 97th Congress will likely consider legislation that will not only provide for federal storage facilities, but also would more clearly delineate the federal responsibility for the development and operation of final nuclear waste repositories. While some technical problems still have to be resolved, the Congress specifically must address the federal role in financing the nuclear waste disposal program. To do so, the Congress will need to consider alternatives that affect the distribution of waste management costs, collection of fees, and the federal budget.

Cost Distribution. The Congress must first decide who will pay the direct and indirect costs of nuclear waste disposal. Electricity consumers receive the primary and separable benefits of the commercial nuclear reactors that produce waste. Other groups, however--the nuclear industry, states, and communities--also have important stakes in disposal decisions and may be forced to bear some of the costs of disposal programs. The next chapter describes the background of the nuclear waste problem and discusses the cost distribution issues in more detail.

Fee Collection. Another decision facing the Congress concerns the choice of a method to collect fees. Fee collection is complicated by the time lag between waste production and its disposal. An ideally constructed fee mechanism should meet three objectives. First, it should ensure that the cost is paid by those consumers using the electricity at the time the waste is produced. Second, the fee rate should be relatively stable and established in advance of the time of collection, so that electric utilities can make the most efficient decisions. Third, the fee should be set at a level to ensure that it collects enough revenues to cover the direct and indirect costs of disposal, but not so high as to produce profits. Chapter III discusses and evaluates the alternative fee-collection options.

Budgetary Treatment of Revenues. Finally, utilities, consumers, and the public will want some assurance that the collected funds will be spent to provide safe and efficient waste disposal. The Congress can use the federal budget process to provide such security by insulating spending from political and budgetary pressures. At the same time, however, efforts to insulate the funds from political pressures are likely to reduce Congressional budget and policy control. Chapter IV describes and evaluates the federal budget options.

CHAPTER II. BACKGROUND

The nuclear fuel cycle begins in uranium mines, where ore containing uranium oxide is obtained. Milling facilities then extract the useful uranium oxide. The next few steps in the cycle chemically and physically convert this product into nuclear fuel rods for use in nuclear reactor cores. Fission reactions within these enriched fuel rods produce the heat that powers nuclear electric power plants. During power generation, however, accumulating fission products reduce the efficiency of these fuel rods. Therefore, one-third to one-fourth of these "spent" fuel rods must be replaced annually.

WASTE DISPOSAL PROBLEMS

Through the 1960s and early 1970s, government and industry planners assumed that this spent fuel would be stored at reactor sites for only about six months to cool and to allow the most intense, but short-lived, radioactivity to decay. It was then to be sent to a reprocessing facility, where the plutonium created by the fission process and the still-useful uranium would be chemically separated from the fission products for reuse in new fuel rods. The waste products from the reprocessing operation would be solidified and disposed of in a federally owned and operated geologic repository.

Commercial Reprocessing Efforts

This part of the nuclear fuel cycle--spent fuel reprocessing and waste disposal--was never fully developed. While the Department of Energy (DOE) currently owns and operates two reprocessing facilities in support of defense programs, commercial reprocessing efforts have been technically and economically unsuccessful. Nuclear Fuels Services, Inc., for example, operated a commercial facility in West Valley, New York, for six years. It closed in 1972 for technical modifications to control effluent releases more effectively, reduce worker radiation exposure, and increase capacity. Since the modifications were considered uneconomic, however, the plant remained closed. Another plant, constructed by General Electric near Morris, Illinois, encountered technical problems and never reprocessed any fuel. A third facility, Allied Nuclear Services' plant in Barnwell, South Carolina, was never completed.

A change in federal policy prevented further efforts. Because the plutonium recovered by reprocessing is not only a useful fuel but also can be used in nuclear weapons, reprocessing could contribute to the proliferation of such weapons and to nuclear terrorism. Therefore, in 1977, President Carter indefinitely prohibited commercial reprocessing as part of his nuclear weapons nonproliferation policy. Even without this prohibition, whether or not reprocessing would be commercially viable remains unclear.

Federal Involvement in Disposal

The federal responsibility for nuclear waste disposal is an outgrowth of the long-standing connection between the federal government and nuclear technology. To avoid the spread of nuclear weapons capability after World War Two, the United States classified nuclear technologies--military and commercial--as secret. This policy was revamped in 1953, with the introduction of the Atoms-for-Peace program to encourage the peaceful development of nuclear energy through sharing knowledge of nuclear technology. At the same time the government has tried to stem the tide of nuclear weapons proliferation. Along with these international goals, the government has maintained its relationship with the U.S. nuclear industry by supporting research and development, and regulating other commercial activities.

Responsibility for the final disposition of nuclear waste has been lodged solely with the federal government because of the waste's hazardous nature. Various types of nuclear waste remain radioactive for periods of time ranging from several hundred years to several hundred thousand. Since it cannot be "disposed of" in the sense that a biodegradable product can, disposal must consist of permanent and isolated storage, generally in deep geologic formations. Therefore, when the Atomic Energy Act of 1954 (Public Law 83-703) authorized commercial development of nuclear energy, the federal government indicated it would control such potentially dangerous materials by mandating that disposal occur on federal land. In 1970, with Reglation 10CFR50, the federal government formally accepted full responsibility for providing a final repository.

Federal efforts to establish a repository have, however, been unsuccessful thus far. The Atomic Energy Commission's site for a full-scale demonstration facility in Lyons, Kansas, was abandoned in 1972 because of pressure from the state and technical problems. Four years later, the Federal National Waste Terminal Storage Program called for the development of six pilot-scale repositories, scheduled to begin operations in 1985. By 1979, this schedule had slipped by at least five years; and, in February 1980, President Carter announced that a full-scale repository would not be operational until the mid-1990s. Only two months later, however, DOE, in a position paper for the Nuclear Regulatory Commission's proceedings on radioactive waste, indicated that a repository would be available sometime between 1997 and 2006.

Utility Planning Problems

Under current policy, spent fuel stored at reactor sites cannot be reprocessed, while at the same time the availability of federal storage and disposal facilities remains uncertain. As reactors continue producing spent fuel, the on-site storage capacity, intended only for short-term use, becomes filled. Some utilities can rerack the fuel rods in a more dense configuration to provide additional storage capacity. Others may be able to expand capacity through new construction. The storage capacity at some reactors, however, may be exhausted during the 1980s, with limited possibilities for capacity expansion. Exhausted storage capacity would force reactor shutdown, unless the spent fuel could be transferred to alternative facilities.

Some utilities, therefore, face difficult decisions concerning their options for spent fuel management in the face of great uncertainties. Since they do not know when federal storage or disposal facilities will be available, they do not know the appropriate time frame for evaluating their storage options. In addition to timing uncertainties, many costs are uncertain, and consequently, no fee for either temporary storage or final disposal has been established.

These uncertainties compound the already difficult planning problems associated with fuel mix selection and capital investment choices. Utilities must decide on the best ways to meet forecast electricity demand and to replace worn out equipment, while constrained by limited capital budgets. To provide new electricity production capacity, for example, many utilities are comparing the costs of coal-fired power plants to nuclear-powered generators. The capital costs of nuclear power plants are generally higher than those for coal-fired plants. The fuel costs, however, may tilt the comparison in the other direction. In addition, projecting future costs is very difficult because of the uncertainties of energy resource markets, environmental and safety regulations, and electricity demand. While the costs of waste storage and disposal may turn out to be small relative to the cost of generation, these costs and, perhaps even more, the uncertainties, affect utility decisions. These issues are discussed in the following section.

COSTS OF NUCLEAR WASTE DISPOSAL

Direct Costs of Disposal

A single 1,000 megawatt reactor generates between 30 and 40 metric tons of spent fuel annually. There are now about 7,000 metric tons of commercial spent fuel stored at reactor sites. About 5,000 metric tons of nuclear fuel currently powers the approximately 70 commercial reactors in this country. Although utility plans to build additional nuclear reactors are not entirely clear, current levels of production alone would result in at least 50,000 metric tons of spent fuel by the mid-1990s. Regardless of how utilities store spent fuel in the interim, it will all have to be moved to a federal repository eventually.

Since there is so little experience in dealing with nuclear waste disposal, its costs are very uncertain. There is no consensus on the proper disposal or regulatory requirements. In addition to the extensive evaluation of disposal methods and sites that must be made, basic technical and economic issues still have to be resolved. While the purpose of long-term disposal is to isolate nuclear waste from human activities, for example, there is still no clear decision on whether or not the disposed spent fuel should be retrievable. The current reprocessing prohibition, which effectively makes spent fuel waste, could be reversed, giving the spent fuel a positive resource value. Retrievability might also be desirable if unanticipated technical problems arose at disposal facilities.

The Office of Technology Assessment (OTA) estimates the direct cost of developing a geologic repository for 45,000 metric tons of waste, with supporting surface facilities, would likely be $3 to $4 billion in 1980 dollars. A facility of this size would provide the currently operating powerplants with waste disposal capacity for 15 to 20 years. Since the required development, including site screening, testing, construction, and licensing, would take close to 20 years, this cost estimate is very uncertain. A fee to cover these costs would probably be about $100,000 per metric ton, or the equivalent of about 1.0 mill (one-tenth of a cent) per kilowatt hour. If the fee cost was passed through completely, it would add about 2 percent to the average consumer's price of electricity.

Indirect Costs of Disposal

The direct costs of disposal programs represent only a part of the total price. States and local communities may require compensation to allow repository development within their jurisdictions. Most communities find the prospect of a local waste disposal facility unattractive. The benefits of such facilities--mostly in the form of jobs and economic growth--may not be enough in themselves to convince communities to accept repositories.

These communities, and those through which the waste is transported, may have to bear the cost of contingency planning. The threat alone of accidents may also represent a cost to these areas. While this cost may be primarily psychological, it could appear in the form of reduced property values and a smaller tax base.

Another related cost that is difficult to measure is the possible loss of states' autonomy resulting from federal actions. No state has volunteered to provide a repository site, and no such offer is expected. Nevertheless, the states do not want the federal government to dictate where the sites should be. In fact, a number of states have voted on referenda that would restrict the transportation and disposal of nuclear waste. While these measures have not been uniformly successful, they point to the growing concern over the waste issue and states' role in selecting disposal sites and regulating transportation of nuclear waste. Although determining the states' participation in disposal decisions is very important, the discussion concerning the political solutions remains outside the scope of this paper.

Distributing the Cost Burden

Carter Administration proposals and recent legislative initiatives assume that the full costs of disposal would be recovered through fees paid by the utilities and other users of the services. The costs would be borne ultimately by those people who benefit from the activities generating the wastes. Just as the costs of waste disposal go beyond the capital costs and standard operating expenses, the benefits of a disposal program are realized by various groups. The distinctions between the types of benefits are important to make, however, in determining an equitable distribution of costs.

The general public, for example, benefits from the safe disposal of spent fuel as well as the reprocessing prohibition. The right to an environment free of nuclear waste is properly vested in the public, however, and the private generation of nuclear waste places this right at risk. So, while some of the costs and benefits of spent fuel disposal are difficult to calculate, the primary and separable benefit of spent fuel production is realized by the consumers of the nuclear-generated electricity. Therefore, it may be reasonable to assess these consumers with the total cost of disposal.

The Costs of Uncertainty

For any government program, unresolved problems and policy changes often lead to additional costs. Such costs for disposal result primarily from two factors. First, unanswered technical questions leave the costs of geologic disposal uncertain, and make utilities' planning difficult. Second, poor planning or mismanagement could cause even wider cost variations. While the current cost estimates could turn out to be too high, the reverse may be more likely. Consumers and stockholders may reasonably be expected to bear the additional costs resulting from technical problems or poor utility planning. On the other hand, the burden of increased costs resulting from poor government planning, management, or policy changes might appropriately be borne by the public.

It is difficult to pass on the cost of disposal for currently generated spent fuel to the consumer for several reasons. The costs of disposal are not incurred at or near the time of electricity generation. Public Utilities Commissions (PUCs) generally allow the passthrough of only those costs which are definite and certain to be paid. In order to charge the electricity consumer for the future treatment of the spent fuel, then, a fee must be established near the time of generation. A set fee which turns out to be inaccurate can create intergenerational transfers, whereas more flexible fees are not likely to be allowed by PUCs. The next chapter introduces and evaluates the fee collection alternatives.

CHAPTER III. DISPOSAL FEE COLLECTION

The exact nature of the fees to be imposed on the users of federal storage facilities and repositories depends in part on the role that such facilities play in the nuclear fuel cycle. For example, if all spent fuel were to be moved to federal storage for additional cooling prior to disposal, the fees for storage and disposal could be combined. On the other hand, if only some utilities were to use the federal storage facilities, a separate fee for disposal would be necessary. This analysis focuses on the collection of disposal fees, independent of possible storage charges.

OPTIONS

Two basic mechanisms would allow fee collection at any of the steps in the well-defined nuclear fuel cycle. The first, a mandatory assessment, would effectively tax a nuclear operation, relating such operation to the ultimate production of waste. This could be in the form of a surcharge on fuel rod manufacture, or a tax levied on electricity generation, for example. Alternatively, a user fee could be imposed on utilities at the time they dispose of their fuel. Such a fee would allow utilities to determine when disposal costs should be faced. These two options are evaluated in the next section by the criteria of certainty of costs for utilities, revenue sufficiency, and fee adjustment.

EVALUATION

Cost Certainty for Utilities

The way in which the disposal fee is collected determines the degree of certainty of its cost for utilities. While the cost of disposal may be only a small part of the annual cost of nuclear power, utilities need to compare carefully the total costs of alternative fuels in making investment decisions for new power plants. Further, the more certain are the charges, the more easily will Public Utility Commissions (PUCs) allow the charges to be passed through to the ratepayers. The fee's certainty is less sensitive, however, to its nature--tax-like or use-based--than it is to the timing of imposition and method of adjustment over time.

Fees to cover the costs can clearly best be determined at the time at which the costs are actually incurred, generally years after the spent fuel is generated. In order for the utilities to analyze investment decisions and for PUCs to allow the passthrough of costs to the current ratepayers, however, the fees would have to be paid, or at least established, much earlier. Thus, there is a direct tradeoff between the degree to which the fee can be imposed upon those consumers benefiting from the spent fuel generation and the risk of transferring part of the cost burden to future consumers. 1/

If a disposal fee were set and imposed at the fuel fabrication or electricity generation stage, for example, it could be considered an additional fuel cost. The various states, however, treat increases in fuel costs differently. Some have fuel adjustment clauses, with which the increases can be passed through to the ratepayers immediately without review by the state commissions. In those states without such clauses, increases may not be recoverable until after a commission rate review. Further, some fuel adjustment clauses only apply to oil and gas, and increases in the cost of nuclear fuel might be excluded. In any case, if the fee were imposed early in the fuel cycle, utilities could probably start to recover the costs relatively quickly. Setting a fee at such a time, well before the disposal costs are incurred, however, would increase the chances that it would be based on inaccurate cost estimates and, therefore, be set at an incorrect level. This is especially probable while the repositories are in the early stage of development. If the fee was set using the high end of the cost estimate range, it would be more apt to cover costs and thus lessen the probability of transferring costs to future ratepayers. This approach would depend on a determination that underestimation of costs is more likely or more serious than early over-collection of fees.

Imposing a fee much later in the fuel cycle would create other problems. While the level of the fee would probably more accurately reflect the correct costs, it would be very difficult to recover the fee from those consumers who benefited from the electricity generation that produced the spent fuel, and the cost would probably be transferred to future consumers. It might be possible for utilities to create reserve funds at the time of electricity generation to be used to pay a later-imposed fee. This method would, however encounter the same problem as an earlier-imposed fee, that is, its amount would have to be set at the time of collection from the ratepayers. Thus, the advantage of cost certainty in delaying fee imposition would be offset by the need for the utilities to charge an approximation of the fee to consumers much earlier to build the reserve account. Once the

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1/ The spent fuel currently in storage poses this problem, since the users of the electricity associated with the waste were not charged for disposal. Thus, the costs have effectively been transferred to another group, either future consumers or taxpayers.

repository becomes fully operational, the costs will be better known, of course, and can be more accurately charged to utilities early in the fuel cycle.

Revenue Sufficiency

There are two aspects of revenue sufficiency. First, the fee collection mechanism must ensure that the full costs of the disposal program are eventually recovered. Second, the need for federal front-end funding and borrowing will be determined by the rate of revenue generation in relation to the rate of spending. In general, the fee collection mechanism must reflect the fact that any costs not paid for as the spent fuel is produced will be imposed upon someone in the future. Failure to provide for the total costs--including emergency funds and compensation to communities if necessary--would lead to intergenerational cost transfers, either through modified fees or government subsidies. Failure to generate a sufficient stream of revenues would create additional budgetary pressure if the federal government was forced to provide funds to meet any shortfall.

The Carter Administration plan, in which the disposal fee for those utilities also using federal storage facilities is tied to the storage fee, might introduce such timing problems. DOE apparently intends to rely on the disposal portion of the storage fee to provide for the advance funding necessary for the research and development phase of the disposal program. During the past few years, as more utilities have been providing for their own storage requirements, DOE has revised downward its projections for the use of federal storage facilities. Thus, the proposed tie between the storage facility use and the disposal fee leaves the revenue stream for disposal research and development uncertain. Since the timing of receipts from a voluntary user fee would depend on utility decisions, imposing an assessment type fee for disposal would probably provide the most assurance of a sufficient stream of revenues.

Fee Adjustment

Whether the fee is imposed as a mandatory assessment or as a user fee, some mechanism by which the fee can be adjusted must be devised to assure ultimate recovery of the total costs. Setting and collecting the fee as early as possible in the fuel cycle would most easily allow the utilities to both make sound investment decisions and recover the costs from the appropriate group of consumers. This type of cost certainty, however, provides the least assurance that the collected funds would reflect actual costs. The cost estimates for other long-term, capital-intensive projects have often been low, and such underestimation of costs can result in insufficient total revenues.

There are two basic options that would allow the recovery of additional costs. The first, a "reach-back" provision, would allow the recovery of unanticipated costs in the future from the utilities that have previously paid for disposal services. The second, a periodic fee adjustment, would simply reestimate the fee for all future deliveries of radioactive waste to the disposal site, but not affect utilities with waste already there. Any reach-back provision would reintroduce the problems of uncertain fees and open-ended liabilities, since utilities would be liable for unanticipated assessments. A provision that periodically reevaluated and adjusted the fee, without retroactive adjustments, might be more acceptable to PUCs, since the short-term certainty would allow the passthrough of costs to consumers. In the face of a periodically changing fee, utilities might choose to deliver spent fuel early to avoid anticipated cost increases. This would not be a long-term problem, however, since these utilities would simply have to pay the higher fee for the next delivery. With either adjustment provision, though, later ratepayers would bear additional costs for services provided to former consumers. The specific equity concern raised by future ratepayers subsidizing earlier ones might, however, be reduced by using high initial cost estimates in setting a fee.

The financial risks of collecting insufficient revenues stem from three sources: technological problems, government policy changes, and inefficiency or poor management. Traditionally, industry has absorbed some of the costs of technical risks in any new venture. Since the federal government has created uncertainty by not building the promised repositories or promulgating regulations, there may be reason for the public to absorb cost escalation resulting from this inaction. Thus, the Congress may want to limit the extent to which utilities would have to pay the fee adjustments. Such limits might provide a more favorable and more certain operating environment for utilities and force the public to absorb excessive increases resulting from government action or inaction.

Operational inefficiency or poor planning can also cause cost escalation. Allowing DOE to recover the full costs for the operation of storage and disposal facilities would reduce the incentives to provide the services at minimum cost. Such inefficiency is not, however, restricted to government operations. For example, the fuel adjustment clauses now in effect allow public utilities to pass the rising costs of fuel through to the consumers without regulatory review. This has created a situation in which the utilities continue to rely on expensive oil, when the long-run costs to the consumer might be minimized by conversion of oil-fired boilers to allow the use of coal. Therefore, since the government is not uniquely inefficient, it might not be fair to force the public to pay for the cost of all poor planning or inefficient management. A further consideration in nuclear fuel disposal is that some cost-cutting actions could jeopardize operational safety.

EVALUATION SUMMARY

Either the mandatory or voluntary user fees, coupled with an adjustment provision, could eventually provide enough revenues to cover the costs of nuclear waste disposal. Since a voluntary user fee would allow utilities a high degree of operational flexibility, though, the timing of the revenue stream would remain uncertain. This might tend to place pressure on the federal budget during repository development. On the other hand, while a mandatory assessment would reduce utilities' discretion, it would provide a more certain operating environment for both utilities and the government. Further, such planning certainty might be enhanced if coupled with a reach-back provision within set limits.

CHAPTER IV. FUNDING MECHANISMS

There are several ways in which the government could manage the revenues generated by disposal fees. If they were treated as general revenues, then spending for the disposal program might be subject to the annual cycle of budget decisions. Alternatively, a trust fund could be established, with the revenues automatically earmarked for the disposal program. A third option, the revolving fund, would treat the disposal program as a continuing cycle of businesslike operations. In choosing the mechanism to fund the disposal programs, the Congress will want to maintain budgetary and policy control while providing assurance to the nuclear industry, utilities, and the public that the collected fees will be applied to the safe disposal of nuclear spent fuel. The general characteristics of these options are discussed below, followed by an evaluation of their applicability to disposal funding problems.

OPTIONS

Direct Appropriations. In the annual budgetary cycle, the Congress appropriates funds that allow federal agencies to incur obligations and to make payments out of the Treasury. The most common form of budget authority is a one-year (annual) appropriation. Appropriations can also be made for a specified period exceeding one fiscal year, or an indefinite period of time, usually until certain objectives have been met.

Trust Fund. Funds collected and used by the federal government for carrying out specific purposes and programs according to the terms of a trust agreement or a statute are handled through trust funds. Such funds are administered by the government in a fiduciary capacity and are not available for the general purposes of the government. Trust fund surpluses are generally invested in government securities which pay interest to the fund.

Revolving Fund. The Congress can establish a revolving fund to finance a continuing cycle of operations in which expenditures generate receipts. Such funds can be set up so that the receipts are available for expenditure without further Congressional action. Only the net excess of expenditures over receipts is included in the budget as an expenditure. Temporary fund surpluses are also generally invested in interest-bearing government securities. Trust revolving funds, a special category of trust funds, are used to carry out a cycle of businesslike operations according to the terms of a trust agreement or statute.

These options entail varying degrees of Congressional control and provide different levels of funding stability. In order for the Congress to establish national policy goals and work towards them, it must maintain control over federal spending programs. The close control afforded by direct appropriations allows the Congress to effect policy changes quickly. This method may not, however, provide the assurance required by utilities, consumers, states, and communities that the disposal program will receive funds necessary to provide for the safe disposal of the nuclear waste. These tradeoffs are discussed in the next section.

EVALUATION

Security of Funds

While the Congress could provide directly appropriated funds essentially when they are needed, it might not be desirable to subject funds for disposal programs to this short-term decision process, even when full repayment is planned. Short-term budget constraints, which can affect the commitment of funds for any program, could reduce the credibility and success of disposal efforts. Pressure from a variety of sources could influence budget decisions, leaving expected appropriations vulnerable to cutbacks. This vulnerability could be reduced through the mechanisms of multiyear budgeting. For example, appropriations could be provided for use in one or more fiscal years beyond the year for which the appropriation is provided.

Revolving funds and trust funds could also reasonably assure the future availability of funds. While the Congress can control the spending of trust and revolving funds, receipts are credited to a specific account rather than to the general fund. A trust fund, or a trust revolving fund, would make the earmarking more formal, with a trust agreement or statute. A trust agreement, the major difference between a trust fund and a revolving fund, might indicate more of a commitment, although such agreements and statutes can be changed. Nevertheless, since fee collection would begin in the early years of repository development to provide funds in later years, the federal government would have to hold these funds in trust and could not use them for other purposes without changing the law. A revolving fund might be more appropriate if there were greater congruence between the rate of fund collection and spending, as may be the case after the disposal facilities are fully operational.

Congressional Budgetary Control

Direct appropriations afford the greatest level of Congressional control. The Congress decides annually the level of funds that it is willing to spend, and changes in policy are reflected relatively quickly in budget decisions. This feature does, however, conflict directly with the stability criterion discussed above.

With nuclear waste disposal, incremental decisionmaking, which can easily result in deferred action, might lead to substantial long-term costs. A trust fund might provide assurance for future funding and reduce the problems associated with incremental decisionmaking. This may, however, reduce budgetary control by the Congress, since trust funds are intended to be insulated from the annual review process. The Congress could maintain some degree of control by careful establishment of the trust fund, and by exercising its right to legislate changes as they are needed in the future. Further, since trust funds are to some degree isolated from the rest of the budget, they provide an opportunity for scrutiny.

Revolving funds theoretically allow greater Congressional control over spending than trust funds. While the receipts to a revolving fund are held in a specific account, there is no explicit trust agreement that prohibits using the money for other purposes. Thus, a revolving fund would provide less security than a trust fund, but somewhat more than annual appropriations.

EVALUATION SUMMARY

If disposal fees were collected and deposited in the Treasury's general fund, there is no assurance that the fees would be applied to their intended purpose. With this option, however, the Congress would maintain the greatest degree of budgetary control. Some assurance and stability for utilities' planning could be provided by advance budgeting. Depositing fee revenues into a trust fund, would place the federal government in a fiduciary capacity and provide written, although revocable, assurance that the money would be spent for its intended use. Removing these funds from the annual decision process, however, would limit Congressional control. Alternatively, a revolving fund might provide some assurance to utilities, consumers, and the public that the money will be available and spent for disposal services without severely limiting Congressional control.

The Chairman. Thank you very much. Mr. Devine.

STATEMENT OF JAMES F. DEVINE, ASSISTANT DIRECTOR FOR ENGINEERING GEOLOGY, U.S. GEOLOGICAL SURVEY

Mr. DEVINE. Thank you, Mr. Chairman, for the opportunity to comment on waste management and this bill.

The CHAIRMAN. Before you begin, I see the rollcall vote is in progress. Please proceed. I do not want to proceed with staff. I will go vote and we will recess for 10 minutes or so.

Mr. DEVINE. I will give a very brief summary of our position in the interest of time.

The U.S. Geological Survey has been involved with DOE at their headquarters in Columbus, Ohio, and the Nevada test site and various locations of the gulf coast region, Utah, and the State of Washington. Our regional screening program is underway in the basin and range province and we have been involved with the WIPP site study in New Mexico.

We are conducting research aimed at improving techniques for site identification and characterization and for the improved predictability of geologic processes. The Survey has been involved and is involved in the subject very deeply.

I would like to offer two brief comments concerning the bill, S. 1662. From a technical viewpoint, we believe the schedules proposed in this bill would be extremely difficult to meet with a sufficient degree of data to have a high degree of confidence that the selected sites would be indeed licensable in the end.

The section 408(c) which establishes a national site survey program is certainly very interesting to us since we and the Department of Energy have a pilot program already underway which addresses this subject.

If this pilot program proves to be successful, we would believe an expanded version would indeed meet section 408 and probably could be completed by the January 1986 deadline, providing funds and manpower are available.

Those are the highlights of my comments, sir. I would be available to try to answer any questions you may have.

[The prepared statement of Mr. Devine follows:]

TESTIMONY OF
JAMES F. DEVINE
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BEFORE THE
COMMITTEES ON ENERGY AND NATURAL RESOURCES
AND ENVIRONMENT AND PUBLIC WORKS

October 6, 1981

Thank you for the opportunity as a representative of the U.S. Geological Survey (USGS) to appear before these Committees to comment on various aspects associated with Nuclear Waste Management and Disposal and on Senate Bill 1662. I am accompanied by Eugene H. Roseboom, Jr., a USGS geologist working on nuclear waste, who will assist me in answering any specific questions you may wish to ask. The attention being given by these Committees to the problem of radioactive waste disposal is greatly appreciated.

I would like to begin by giving a brief overview of the Geological Survey's involvement with this subject:

The USGS is assisting the Department of Energy (DOE) in earth-science related portions of the National Waste Terminal Storage Program. Establishment of a mined geologic repository for nuclear waste involves major geologic and hydrologic questions which for the first time attach a practical significance to predictions of 10,000 years into the future. The USGS advises the DOE by maintaining liaison personnel at DOE's Germantown, Maryland, Headquarters and their Columbus, Ohio, Office and by reviewing the plans and products of DOE's contractors. At the

Nevada Test Site we plan and manage the site exploration program for DOE. We are also conducting specific geologic and hydrologic investigations at various locations being considered by DOE in the Gulf Coast, Utah, and Washington. In addition, the Geological Survey has just begun a cooperative effort with the States of the Basin and Range Province of the western United States to identify areas with high potential for possible repositories. We are also conducting research aimed at improving techniques for site identification and characterization and to improve capabilities to predict the consequences of geologic processes and events that could affect a repository. The USGS played a major role in identification of the Waste Isolation Pilot Plant (WIPP) site near Carlsbad, New Mexico, and is still completing studies of the hydrology of that area. I say this to emphasize that the USGS is no stranger to the problems of exploring for and characterizing a mined geologic repository for nuclear waste.

SCHEDULES

The proposed bill significantly accelerates current schedules for site selection, site characterization, test and evaluation facilities, national site screening survey, and licensing applications. The Geological Survey is concerned that the proposed faster schedules might be unrealistic in terms of acquiring the needed technical information. The types of information needed for site characterization and performance evaluation for licensing are fairly well understood by the interested agencies; however, the time required to perform the tests to obtain this information is uncertain. Neither a repository nor a test and evaluation facility has ever been built, characterized, or licensed. Not all of the geologic, hydrologic, and engineering test procedures have been designed and field tested for these investigations. The site characterization phases will be a learn-as-we-go procedure in which we cannot accurately predict schedules. To complicate the scheduling, sociopolitical aspects of State and public participation can also impose unplanned delays in obtaining technical information.

We believe from a technical standpoint, it is unrealistic to have adequate earth-science information to meet NRC requirements for authorizing construction of a repository by January 1, 1988. We further believe it is highly unlikely that sufficient earth-science information will be available by June 1, 1982, or January 1, 1983, for three candidate sites to be selected objectively. With inadequate information on which to base the decision, DOE will be forced to "guess" which localities may offer the best chance of success. It also appears to increase the risk that the final site selection may prove to be unacceptable if the site selection is made as early as January 1, 1985.

The USGS believes that liberal time should be allowed to develop the necessary techniques and to acquire ample scientific information to support site selection decision and license application. Proceeding unnecessarily fast could lead to poor selection, site failures, license rejections, and wasted time and resources.

NATIONAL SITE SURVEY PROGRAM

Sec. 408(a) establishes a national site survey program to be conducted by the Secretary and the United States Geological Survey. In the past, such surveys have been aimed at specific rock types, first salt and then more recently shale and granitic rocks. This fall, the Geological Survey began a pilot effort of a more comprehensive type in the Basin and Range Province of the western United States to identify all potential areas with geologic and hydrologic characteristics that appear to provide multiple barriers to nuclide transport. This is being done with the participation of the States involved in developing screening methods and making the actual evaluations. If this is successful, it can serve as a prototype for an overall national screening program. The estimated time required for the pilot study is 3 years. Thus an expanded program of this type, using the lessons that will be learned in the Basin and Range Province, could probably be carried out by January of 1986, if manpower and funds are available.

In closing I would like to emphasize that the USGS has been, and is prepared to continue to be, committed to applying its geological and hydrological expertise toward the solution of the radioactive waste problem. We believe that the current program is a good one. If we have any further technical comments on this legislation we will provide them to the Committee in a legislative report.

This completes my statement. I'd be pleased to attempt to answer any questions that you may have.

Senator **Simpson** [presiding]. Thank you very much. We appreciate having that testimony.

Let me ask several questions. Dr. Hernandez, it is very nice to see you. I would like to ask you a question. In your testimony you indicated you were pleased to see the concept of a multiple barrier design for a repository incorporated into S. 1662 and that feature is a part of the EPA's standards that are now under development.

Do you believe it is necessary these multiple barriers also be independent rather than having specific performance criteria for each barrier or is it more appropriate to consider the overall performance of the total system of the barriers?

Mr. **Hernandez**. I would like to stress one thing about our proposed standards and guides. Where we are going to discuss barriers, what they might consist of, and how they might operate will be guidance. This will not be part of the regulation per se, but will be guidance that is not regulation in disguise, but really guidance to NRC and DOE and others in terms of how this might be accomplished.

We look at this in terms of a system of barriers that would operate together. We are not trying to provide any kind of numerical standards for each one of the barriers independently of the others in any way. Rather, we will provide numerical standards for how they operate together in an integrated form to contain the transmission or movement of radioactive materials.

I would describe ours as a concept of the system of barriers where one might be effective for certain things and another more effective in some other way.

Senator **Simpson**. Each one with its own independent specific criteria as a barrier?

Mr. **Hernandez**. Not necessarily. We are looking at an overall performance goal. We are suggesting these as possible ways of achieving it.

The mix of which kinds of barriers you use when and how is a design criteria.

Senator **Simpson**. You really are considering the overall performance of the final product?

Mr. **Hernandez**. Yes. Our regulation will be limited to that. The guidance will say, here are some good ideas for how you might achieve that sort of thing.

Senator **Simpson**. You are suggesting revising S. 1662 to set a date for issuance of EPA's proposed high-level waste standards followed 1 year later by the final standards. Do you believe the proposed standards will be a sufficient basis for NRC to proceed with its technical criteria?

Mr. **Hernandez**. Yes, sir. I believe the standards we will propose are consistent and will not preclude a cost effective solution for the disposal of high-level wastes in mined geologic facilities. I think they are going to be consistent with that sort of thing. I think they can be used rapidly.

I noticed that in the NRC testimony they said they had already seen our standards and guides in draft form, and they had taken them into account. I think they know and understand where we are coming from and what we plan to do.

Senator SIMPSON. In my experience which is limited, a little over 2½ years in this place, having been in this nuclear regulation area all during that time, there have been some very frustrating and repeated delays in the EPA's standards-setting activities and especially in this nuclear area.

I know that is a matter of great concern to you. I remember we talked about that at the confirmation hearing. I believe it is a great concern to the Administrator.

How confident are you that EPA can and will meet the deadlines you have proposed on these high-level waste standards?

Mr. HERNANDEZ. Mr. Chairman, one other time I was before your subcommittee to testify on our tardiness in preparing standards for the inactive uranium mill sites and EPA standards for controlling active sites. At that time I gave you some dates far out in the future when we would be able to propose those.

Let me give you some good news. I think we will be coming forward fairly soon with the EPA's standards for inactive uranium mill sites, much before the 1983 date I promised earlier, and hopefully those will be available for review soon.

With regard to the high-level waste standards, we are close to proposing at this time. Our deadline is to have them into the so-called red border process in about 2 weeks and to the Administrator shortly thereafter, a 60-day period at OMB and then you are into the new year. In terms of getting them into the Federal Register and proposed, we believe the end of January is a realistic date for producing those.

The long comment period provided is 6 months, and we believe it is necessary because we think people will want to ask lots of questions and have a lot of input. We think it is going to pay off in terms of getting the job done on the other end. We are optimistic that 1 year from the time we propose these, we will have a final draft.

Senator SIMPSON. I hope that can take place. We will recess for 10 minutes so I may respond to the rollcall vote. Thank you.

[Whereupon, a recess was taken.]

Senator SIMPSON. The hearing will come to order. I appreciate your patience. I have some questions of Mr. Devine.

You expressed the concern that some of the elements of the timetable for the first repository may be too accelerated to provide the technical information needed.

What specific adjustments would you recommend to us for this timetable?

Mr. DEVINE. The problem of identifying specific sites so quickly tend to lock you into sites you know the most about. That may in the long run not be the most desirable position to end up in.

We would propose, I guess, a slightly less accelerated schedule on the order of 6 months to a year.

Senator SIMPSON. Six months to a year?

Mr. DEVINE. There is some uncertainty in that because it has been impossible to tell specifically the data you need as you gather new data. It is not always possible to identify ahead of time how much and what kind of data you must have.

Senator SIMPSON. I also take it from your testimony that you feel the 1986 date for the completion of the national site survey program is workable as far as time. Is that correct?

Mr. DEVINE. Yes. As we view such a program and you realize we are viewing this problem more from a regional and area standpoint than specific sites which is not basically our function so as we view that segment, yes, providing we do not hit snags along the way, we feel we could meet that deadline.

Senator SIMPSON. What are your views on the direction in the bill that one factor in selecting the site for the second repository is to be geographical distribution? Are there any difficulties other than political in finding acceptable geologic formations in various regions of the country?

Mr. DEVINE. Certainly there are difficulties. With the exception of a few regions that we would preclude summarily, we do not see automatic exclusions of large portions of the country. We do not think that is the situation we may face. There are some areas we would preclude summarily but, by and large, any region is still a candidate region.

Senator SIMPSON. You are not limiting any geographical area of the United States during these initial deliberations?

Mr. DEVINE. That is correct.

Senator SIMPSON. I think that is important, if for nothing else that the interest is kept up.

Mr. Cotton, what are your views on the policy established by S. 1662 on the disposal of high-level radioactive waste and spent fuel in a repository? Do you agree all high-level waste must ultimately be disposed of in a repository?

Mr. COTTON. I am not sure I understand the question. Are you asking for the distinction between high-level waste and spent fuel or disposal in the repository?

Senator SIMPSON. Use of the repository.

Mr. COTTON. I think that is a value judgment as to whether one wishes to go with a disposal system that does not require any future tending and monitoring or whether one wants to go with a long-term storage system. There are really no technical grounds for the choice between those.

Senator SIMPSON. Other than a value judgment, do you think we should dispose of those high-level wastes in a repository?

Mr. COTTON. As opposed to being stored?

Senator SIMPSON. Yes. A repository is permanent storage.

Mr. COTTON. In our analyses we have defined disposal as emplacement of waste in a way that requires no continued human intervention to provide the long-term isolation you wish. It is treatment in a way in which you can abandon the facility and the isolation will be provided by natural and engineered barriers, as opposed to storage which is emplacement in a way that requires continued monitoring and control.

We are trying to distinguish between a storage facility and burial in a deep facility which you can then walk away from. It is clear there is a great deal of concern about the desirability of emplacing waste in a storage facility and leaving it there for an extended period of time.

I would guess the commitment in this bill to a permanent disposal system will get a substantial degree of public consensus.

Senator SIMPSON. I think it is very important it be there or we will have no consensus. It is assured we must be precise in our definition in legislation of "storage" and "disposal" and "permanent."

Mr. COTTON. We discovered in our own research on the subject that there is no clear distinction between storage and disposal in existing legislation. We found it an extremely confusing situation.

Senator SIMPSON. You have been at it for a few years. That original request for the study was in June of 1978. Three and one-half years later and several bucks, we still have not had the completed report presented. Is that about where we are?

Mr. COTTON. We are very close to sending it to our Board. We found it a much more difficult problem to integrate the institution and technical issues than we had anticipated.

Senator SIMPSON. If you say it that way, I am sure it was a problem. I believe you.

That needs to be presented in the debate on this legislation. It is very critical. When do you think it will be available?

Mr. COTTON. We hope to send it to our Board in November. First we have to send a draft for one more cycle of review by our advisory panel.

Senator SIMPSON. I cannot emphasize enough the importance of that with the movement of this legislation and the way I perceive it will begin to move. For the first time there is very interesting impetus between the committees and between members of the committee, majority and minority and that information I think and every good common judgments should be our hands.

I really address that without a threat or anything of that nature. It just seems if government is to work, you should be looking at what is cooking right now with this and get it to us. That is a nontechnical definition.

Have you assessed the need for a test and evaluation facility such as provided in this legislation and if so what are your views on that?

Mr. COTTON. It seems clear that the kinds of tests that are proposed in the legislation to be conducted in the test and evaluation facility—the tests of logistics and packaging and emplacing waste in the repository—definitely need to be performed prior to the design and construction of a repository. We think it is a very positive step to have focused on those logistic questions because they have been given very little attention until recently.

We feel some kind of pilot testing at pilot scale is a worthwhile step. The question of where it should be and whether it is best done in the repository site is one that may bear a bit more consideration. There is one potential concern that with the schedule in the bill, the test and evaluation facility would not become operational until the time at which you are already beginning to construct the repository. In that case you would not have the data from the facility in time to affect the initial design of the repository.

There may be some value to doing perhaps additional tests earlier in some other site that you can get access to quicker. The problem would be you might discover your projected designs do not work the way you thought they would at which point it may be too late to readily make changes in the design, if you wait until 1988.

Senator SIMPSON. I appreciate that. I have some other questions and I will present those in writing to you.

One of the witnesses in the next panel has a time problem with a flight schedule and there is another rollcall vote.

I thank you all. There will be questions submitted by Senator Johnston and I believe by Senator Hart. The minority have indicated they have additional questions they wish to have answered.

Thank you very much.

We will take the panel consisting of Mr. Sherwood H. Smith, Jr., chief executive officer and president of Carolina Power & Light Co., representing the American Nuclear Energy Council, Edison Electric Institute, and Utility Nuclear Waste Management Group; Mr. David Berick, Washington representative, Environmental Policy Center; Eric Van Loon, executive director for Union of Concerned Scientists; and Mr. Edwin A. Wiggin, executive vice president, Atomic Industrial Forum.

Mr. Smith, I am going to have you testify so you can get on your flight.

STATEMENT OF SHERWOOD H. SMITH, JR., CHAIRMAN AND CHIEF EXECUTIVE OFFICER, CAROLINA POWER & LIGHT CO.

Mr. SMITH. Thank you, Senator Simpson. I am Sherwood Smith, chairman of the board and chief executive officer of Carolina Power & Light Co.

My company provides electric service in a 30,000 square mile area with a population of about 3.5 million people in North and South Carolina.

I am very pleased to be here to discuss S. 637 and S. 1662. I testify today on behalf of the American Nuclear Energy Council of which I serve as chairman of the board; the Edison Electric Institute of which I am chairman of the Policy Committee on Governmental Affairs and the Utility Nuclear Waste Management Group, a group of 39 electric utilities of which Carolina Power & Light is a member.

With respect to the amendment which has been submitted for consideration by Senator McClure earlier today, perhaps I should make a comment at the outset. We certainly appreciate the interest and the depth of study I am personally aware of that Senator McClure has given to this subject. I think the interest he has shown is very positive and commendable from the standpoint of our industry.

I think the importance may be in getting the question out on the table initially so a decision can be made as to whether or not reprocessing should be included in the legislation now before the committee and which we would hope the Senate and hopefully the Congress would enact.

I would like to make these observations with respect to reprocessing. Over the past 10 to 15 years, Government policy, actions and often inactions have prevented reprocessing from becoming available.

Whether or not private industry or the Federal Government will seek to go forward soon is not known now and it probably will not be known for some time.

Reprocessing is a very controversial subject. We believe it would be unwise at this time to interject the controversy over reprocessing in this legislation because to do so in our opinion would certainly delay the passage of this badly needed legislation if not perhaps prevent its passage entirely by this Congress.

There is nothing in either S. 637 or S. 1662 that is inconsistent with any subsequent decision to go forward with reprocessing either on the part of private industry or should the Federal Government change its position, by the Federal Government.

The study of reprocessing and any legislation associated with it we believe should not be allowed to become a part of this very badly and urgently needed legislation but the study of reprocessing should proceed separately and independently.

We have submitted to the staffs a prepared statement and I would ask the text be included in this record.

We will also provide the staffs with a section-by-section analysis of S. 1662 for the record in the next few days.

We feel it is an excellent piece of legislation but there are specific improvements needed in several sections of the bill and I will touch on a couple of those.

There is an absolutely urgent need for nuclear waste management legislation. The management and disposal of high level radioactive waste had been the responsibility of the Federal Government since the early days of the Atomic Energy Commission.

The public has lost confidence in the ability of their Government to meet this responsibility because of the many policy changes and agency reorganizations that have resulted from changes in administrations and changing political pressures.

In the chairman's opening statement on September 24 when this legislation, S. 1662, was introduced, it was said "congressional action is imperative to achieve any predictable result in the nuclear waste issue." We could not agree more.

The legislation is imperative now for a number of reasons. I will summarize those.

Senator SIMPSON. If you could do that quickly so I could get a couple of questions to you before I go vote. I know it is very likely that you will have to leave before I return. We will have to recess for about 10 minutes again.

Mr. SMITH. Yes. To insure that changes in administrations and in Congress will not result in repeated changes in directions and unnecessary delays in the program as has occurred in the past, to define the roles of the States and the Indian tribes to avoid disputes and delay and to clarify the decision points at which preparation of an environmental impact statement in compliance with NEPA is appropriate.

At this time I would like to demonstrate quickly with a chart the actions our company has taken to try to provide for its own management of spent fuel. I think it is necessary that this Congress and the public generally understand the great efforts and expense that the utility industry has already taken to provide for the handling of the spent fuel.

I will ask my assistant, Mr. Davis, to hold the chart. This is typical of what other utilities have done. In 1970, our company entered into a contract with AGNS, Allied General Nuclear Service, for the reprocessing of spent nuclear fuel. That was before we brought into service our first nuclear plant.

We brought in the first nuclear plant in the Southeast in 1971, our Robinson pressurized water reactor unit began commercial operation in April. In 1975 the pool was full. We then added racks. Adding racks is not something that has come to the forefront recently.

In 1977 and 1978 the pool was again full. We purchased the shipping cask and we were the first utility to have a licensed rail shipping cask. We went to another State where we had another unit. It was a boiling water reactor. We had to rerack the boiling water reactor pool at our Brunswick plant at Southport, N.C. We began shipping fuel to the Brunswick plant.

During this period of time, a change in Government policy had prevented AGNS from being able to complete and have a license to operate its reprocessing and storage facility. Through 1979 and 1980, we continued to ship fuel from our Robinson Plant in South Carolina to our Brunswick plant in North Carolina.

Currently our plan is to rerack pools for a second time. We have license applications pending for all three of the units we now own and operate. We expect by 1982 and assuming the licensing amendments are approved, to install a maximum storage capacity, the high density racks, at our Robinson Plant and we have already begun to do that in our Brunswick Plant and by 1986, having made maximum use of the existing storage capability at both plants, we will lose full core discharge capability at the Robinson Plant and we will need additional offsite storage capacity.

Between now and 1986 there is not sufficient time to take any action other than to ship the fuel to a federally licensed and owned away-from-reactor storage facility.

There is a grave danger that we may run the risk of having to shut down that plant and delay if AFR storage is not available.

Senator SIMPSON. Mr. Smith, I will be back on 10 minutes.

Mr. SMITH. I will stay, Senator.

[Whereupon, a recess was taken.]

[The prepared statements of Mr. Smith follow:]

Summary Statement of Sherwood H. Smith, Jr.

Mr. Chairman and Members of the Committee:

My name is Sherwood Smith, I am Chairman of the Board, Chief Executive Officer and President of Carolina Power & Light Company. My company provides electric service in a 30,000 square-mile area with a population of about 3-1/2 million people in North Carolina and South Carolina.

I am pleased to appear today to discuss S.637 and S.1662. In addition to representing our own Company, I testify today on behalf of the American Nuclear Energy Council, of which I serve as Chairman of the Board; the Edison Electric Institute, of which I am Chairman of its Policy Committee on Governmental Affairs; and the Utility Nuclear Waste Management Group, a Group of 39 electric utilities of which Carolina Power & Light Company is a member.

Senators, we have submitted to your staffs a detailed prepared statement. I would ask that the entire text of that statement be included in the record of this hearing. As you requested in your letter inviting me to testify, we will provide your staffs with a section-by-section analysis of S.1662 for the record in the next few days. Specific improvements appear to be needed in several sections of the bill, and these will be pointed out in this analysis.

There is an absolutely urgent need for nuclear waste management legislation. Management and disposal of high-level radioactive waste have been a responsibility of the Federal Government since the earliest days of the Atomic Energy Commission. The public has lost confidence in the ability of their Government to meet this responsibility because of the many policy changes and agency reorganizations that have resulted from changes in Administrations and changing political pressures.

Mr. Chairman, in your opening statement in introducing S.1662 on September 24, 1981, you stated: "Congressional action [is] imperative to achieve any predictable result in the nuclear waste issue." We could not agree more. Legislation is imperative for a number of fundamental reasons: (1) to ensure that changes in administrations and in Congresses will not result in repeated changes of direction and unnecessary delays in the program -- as has occurred in the past; (2) to define the role of the states and Indian tribes to avoid disputes and delay; and (3) to clarify the decision points at which preparation of an environmental impact statement, in compliance with the National Environmental Policy Act, is appropriate.

It is essential that Federal legislation be enacted to establish a consistent and stable policy. With respect to the required legislation, I want to highlight our position on three major issues of vital concern to the electric utilities:

first, the Federal program for a geologic repository; second, the need for interim spent fuel storage capacity; and third, the means of financing the Federal waste management program.

Mr. Chairman, you and the co-sponsors of S.1662, and Senators Johnston and Jackson in co-sponsoring S.637, are to be commended for recognizing the urgency in adopting a national waste management plan. S.637 is similar to S.2189, which overwhelmingly passed the Senate last year with industry support. S.1662 incorporates and builds on many of the provisions in S.2189. Thus, we propose to focus our remarks on S.1662 today.

S.1662 clearly recognizes and fairly deals with the Federal-State relationship in establishing nuclear waste facilities. Your bill balances the need for both public participation and careful attention to the environment with the need for a rational set of milestones in order to accomplish the timely operation of a geologic repository. The financial arrangements in your bill, which I will discuss in some detail, would assure sound financial underpinings of nuclear waste management programs.

We believe that any waste management program established by legislation must be managed by a mission oriented organization; must have adequate financial resources; must be technically conservative; must establish realistic milestones; and must be publicly acceptable. In general, S.1662 provides for these basic elements. Title IV of S.1662 establishes the clear policy of the Federal Government for responsibility for permanent disposal of nuclear waste in a federally owned and operated repository licensed by the NRC. It establishes a realistic timetable to ensure the timely implementation of the repository program. However, more may be required in streamlining procedures to ensure that the legislative milestones are achieved.

Section 407 of Title IV authorizes the establishment of a test and evaluation facility. We agree that an integrated test and evaluation facility could provide early technical data on repository designs and site specific information, and serves as a fast way to demonstrate to the public that the technology exists to dispose of nuclear waste in a safe manner. However, a test and evaluation facility should not be a separate program, but rather an integrated extension of unlicensed activities as are contemplated by the Nuclear Regulatory Commission's rules for licensing a geologic high-level waste repository. Thus, we support the concept of such a facility, as set forth in S.1662, that does not delay the overall geologic repository program or add significant costs to the waste management program, but rather contributes to timely repository site characterization, evaluation and licensing activities.

While we prefer the more comprehensive approach of Title III of S.637, we nonetheless support Title III of S.1662, which would establish a Federal interim spent fuel storage program. The spent fuel storage issue is one of critical importance to my company and many other utilities. In 1986 one of our nuclear units, H.B. Robinson Unit 2, located near Hartsville, South Carolina, will run out of full core discharge capability even with the current expansion of storage capacity to the maximum extent. We have looked at all of the alternatives available to us after 1986 and only the use of one of the existing away-from-reactor spent fuel pools -- located at Morris, Illinois; Barnwell, South Carolina; or West Valley, New York -- appears to be a viable option, taking into account economic, regulatory and technical considerations. We believe that the implementation of Title III of S.1662 requires the acquisition or leasing, utilizing utility funds as provided for in the bill, of one of these three facilities by the Federal Government. This is the only way to ensure the availability of interim spent fuel storage capacity in a timely manner to meet the January 1, 1983 deadline provided for in the legislation. If there is no interim spent fuel storage capacity available in 1986 for fuel from our nuclear plant in South Carolina, it could be forced to shut down during the 1980's with a real possibility of brown-outs, and the inevitability of higher-cost power from expensive imported oil.

The utilities have no problem with the principle of maximizing, to the extent practical, on-site interim storage of spent fuel. They are already doing just that. Based on data from a recent DOE survey of 67 commercial nuclear reactors, 62 were involved in expanding spent fuel storage capacity. In fact, 15 reactors were reracking for a second time and 3 reactors were undergoing a third reracking. However, as you know, prior to 1977 utilities had planned to ship spent fuel to reprocessing facilities, and did not contemplate or provide for significant spent fuel storage capacity on site. Some of the older nuclear plants, H. B. Robinson among them, simply must look elsewhere for spent fuel storage. This short-term problem was created by an abrupt shift in Government policy in banning reprocessing, and notwithstanding a change in Administrations and policy, we still need Government assistance to provide an interim solution to a problem of the Government's making. However, as provided for in S.1662, the cost of this interim spent fuel storage would be borne by those utilities utilizing that service. We certainly agree with this provision.

Perhaps the most novel aspect of S.1662 is the financing arrangements in Title VI. A mandatory fee in the amount of one mil per kilowatt-hour of nuclear generated electricity is proposed to be collected by utilities operating nuclear plants. The amount collected would finance the implementation of commercial nuclear waste management facilities. We note that if such a charge had been levied during 1980, the amount collected would have been more than $250,000,000. Based on current projections of nuclear power plants commencing operations in the new few years, by 1990 a fee of one mil per kilowatt-hour would generate over

$800,000,000 in that year. This appears to be a reasonable estimate of the necessary financial requirements for an adequately funded waste management facility, and, in fact, may be more than what is required.

We in the utility industry are not enthusiastic about serving as tax collectors for the Federal government; in fact, we view it as a undesirable precedent. We also do not view this scheme as the most equitable financing arrangement. Since a different number of kilowatt-hours will be generated by the same amount of fuel in different plants, depending on design differences, the length of time between refueling outages and the operational history of the plant during each fuel cycle, a different fee will necessarily be collected for the same number of kilograms of spent fuel generated from different plants. Furthermore, since the fee proposed in Title VI of S.1662 would only be collected prospectively, these future payments do not accommodate the existing spent fuel inventories.

On the other hand, the assessment of a one mil per kilowatt-hour fee has the distinct advantage of simplicity, ease of administration, certainty of an equal assessment to all beneficiaries of the electricity from nuclear fuel, and it ensures that the waste management program will go forward in a timely manner with adequate funding. Thus, on balance, I believe that the utilities would be willing, somewhat reluctantly, to support such a mandatory fee on the electricity generated from nuclear power in return for the firm contractual commitment of the Federal government to take title to the radioactive waste or spent fuel for disposal. The fee should appropriately be stated as a cost component of fuel to be recognized as an operating expense.

We also suggest that a one-time fee be paid into the waste management fund at the time of delivery of spent fuel or radioactive waste from spent fuel removed from reactor cores prior to enactment of this Act. Otherwise, future customers utilizing nuclear generated electricity would pay for disposal of spent fuel from which they received no benefit. Most utilities have taken into account the need to make such a future payment on spent fuel already removed from the reactor of their operating nuclear plants. Therefore, to the maximum extent practical, the actual beneficiaries of nuclear fuel would pay for the disposal costs.

We firmly believe that the legislation should authorize and direct the Secretary of Energy to enter into contracts with all nuclear power plant operators by which the Government agrees to take title to and responsibility for radioactive wastes or spent fuel by a specific time, in return for the commitment of the utility to collect from its customers and pay to the Treasury a fee of one mil per kilowatt-hour of nuclear generated electricity for all nuclear fuel removed from nuclear reactors after the enactment of this bill. The contract should require a fee, generally equivalent to an average one mil per kilowatt-hour charge, to be paid by the owners of spent fuel removed from nuclear reactors prior to enactment of this bill.

While we believe the one mil per kilowatt hour charge to be a reasonable estimate, it may in the future be too high or too low. There should be a provision by which the Secretary of Energy annually recommends to the Congress whether an adjustment should be made in the amount of the fee. The fee should only be changed by an Act of the Congress.

As provided in §602, the Secretary is authorized to borrow necessary funds from the Treasury and to pay an appropriate interest rate thereon. Conversely, the Secretary should be responsible for the investment, in Treasury instruments, of any excess amounts in the fund, and for the collection of appropriate interest paid on such investments.

There is an additional aspect of the cost of waste disposal facilities which we believe should be treated in legislation. Financial assistance should be made available to assist State and local governments of areas affected by waste disposal facilities. This assistance should be provided to offset any direct or indirect costs incurred because of environmental, economic or other impacts resulting from the facilities. The cost of such financial assistance should be financed from fees collected from the utilities and paid into the Waste Management Fund as provided in Title VI of S.1662. This financial assistance, among other things, should include:

(i) financing meaningful State and local participation in the planning, siting, development, construction and operation of a facility;

(ii) increasing public knowledge of facility planning and impact management; and

(iii) making payments in lieu of taxes, to offset, for example, increases in necessary housing, schools or public services; to aid the construction and maintenance of highways; and to enhance public safety and emergency response capabilities.

The State and local community which hosts a nuclear waste repository is performing a service for all citizens who benefit from the economical and environmentally sound generation of electricity from nuclear power, and they should be reimbursed for such reasonable costs.

With respect to managing the nuclear waste program, I might mention an issue that need not be resolved in this legislation, but must be addressed soon. S.1662 assumes that the Secretary of Energy will be responsible for the waste management program, although we are all aware that the Secretary is busily preparing to dismantle his Department. We urge the Congress to consider establishing an independent, self-financing, mission-oriented authority -- perhaps, a public corporation -- for implementing a national waste management program. We would like to see utility representation on the board of directors of such an authority to monitor the expenditure of money on the waste management programs to ensure the program is operated on a sound financial basis. In fact even under a DOE administered program, the utility users of the waste management services should be provided a mechanism for input to the financial administration of the program.

In summary, with regard to the financial arrangements in S.1662, while the electric utilities want to make it clear that they are concerned about the precedent of collecting a tax for the Federal Treasury, we recognize that nuclear waste management is a unique Federal responsibility resulting from the joint effort of the government and industry to utilize nuclear energy for the public benefit. Thus we view this financing arrangement not as a precedent, but rather as an innovative mechanism for ensuring the financial viability of a successful long-term Federal waste management program. Since the service will be provided to the utilities, we believe that the utility industry should be afforded a direct opportunity to influence the direction of the financial commitments of the waste management program that is financed from fees paid by our customers.

In conclusion, we cannot emphasize strongly enough the need for action by Congress this year in implementing a Federal waste management program. Interim storage capacity for spent fuel should be acquired as soon as possible. A permanent repository site should be selected and a repository constructed on a timely schedule. An integrated test and evaluation program to demonstrate the feasibility of the technology for the public is an important aspect of our waste management effort. We believe that S.1662 encompasses the essential aspects of a waste management program and, with the modifications that we have suggested, urge your prompt action on this legislation before the end of this year.

Again Mr. Chairman, we appreciate your commitment to guiding waste management legislation through this session of Congress.

We stand ready to assist the Committee in any way we can.

I would be happy to answer any questions that you might have.

Statement of
Sherwood H. Smith, Jr.
Chairman and Chief Executive Officer
Carolina Power & Light Company

on behalf of

The American Nuclear Energy Council
The Edison Electric Institute
The Utility Nuclear Waste Management Group

Before the
Committee on Energy and Natural Resources
and the
Subcommittee on Nuclear Regulation of the
Committee on Environment and Public Works

Concerning
Nuclear Waste Management Legislation

October 6, 1981

Mr. Chairman and Members of the Committees:

My name is Sherwood Smith. I am Chairman of the Board, Chief Executive Officer and President of Carolina Power & Light Company (CP&L). My company provides electric services in a 30,000 square mile area with a population of about 3 1/2 million people in North Carolina and South Carolina.

I am pleased to testify today on S.637 and S.1662 on behalf of the American Nuclear Energy Council (ANEC), of which I serve as Chairman of the Board; the Edison Electric Institute (EEI), of which I am Chairman of its Policy Committee on Government Affairs; and the Utility Nuclear Waste Management Group (UNWMG), of which CP&L is a member. ANEC represents more than 100 organizations having an interest in nuclear power. The member utilities of EEI provide about 78 percent of the nation's electricity and serve over 67 million customers. The UNWMG is comprised of thirty-nine utilities with nuclear interests. The purpose of the Group is to monitor the Federal Government's programs relating to nuclear waste management and, where possible, assist or influence the expeditious implementation of sound programs.

What we propose to do here today is to emphasize those points regarding federal policies for spent fuel storage and high-level radioactive waste disposal which are of particular interest to us. We would also like to discuss these issues in light of the bills which are presently before these Committees. S.637 is similar to S.2189, which was passed overwhelmingly by the Senate the last session of Congress. The industry strongly supported its passage. Our views on the provisions in S.2189 are a matter of record before the Congress and we therefore propose to focus our remarks on S.1662, which was very recently introduced with the co-sponsorship of the Chairmen of these two Committees.

We begin with the proposition that nuclear power is, and will continue to be, a vital source of energy for baseload electricity generation. In the United States today, we have 76 nuclear plants with operating licenses with a rated capacity of almost 57,000 MWe. This installed electric generating capacity from nuclear power exceeds the entire installed capacity as it existed in the U.S. at the end of World War II. We now derive between 11 and 12 percent of our electricity in the U.S. from nuclear power. It is fortunate, indeed, that this is so when one examines our perilous dependence upon overseas petroleum supplies. Certain sections of our nation are especially vulnerable to the continued high prices of OPEC oil and to the threat of significant curtailment or cut-off of these foreign oil supplies.

Presently, we have 80 nuclear power plants under construction in the United States, representing 88,000 MWe of additional electric generating capacity. Of those 80 plants, over 30 are presently under operating license review. Those plants due to come on the line in the near future, together with our existing 76 nuclear plants, can and will make a significant contribution in assuring an adequate supply of electricity for our nation in the years to come.

These nuclear plants -- both presently operating and under construction -- represent an enormous financial investment by the American electric utilities in the beneficial development of a technology encouraged and promoted by the United States Congress and a number of Presidents, both Democratic and Republican, as a source of safe, clean and relatively inexpensive energy for our homes, offices and industries. While some of the earlier, optimistic expectations have not been realized, the contribution of nuclear power as a source of electric energy generation must not be underestimated. A measure of the economic worth of one large nuclear plant is the differential cost of generating the same electricity at a coal plant, which amounts to between $300,000 and $500,000 more per day in fuel costs. The differential cost for electricity produced from oil-fired plants is significantly greater. While we strive for greater energy conservation and look to energy resources other than oil, coal and nuclear, every responsible study of near and mid-term energy needs projects an expanded role for both coal and nuclear power for base load electricity generation.

Notwithstanding this universally acknowledged need, the potential contribution of nuclear power to U.S. energy supplies may not be fully realized in large part because the public is losing confidence in the Federal Government's ability to resolve the waste management issue. The management and disposal of high-level radioactive wastes is a responsibility that the Federal Government -- from the earliest days of the Atomic Energy Commission -- has explicitly reserved to itself. The public seriously questions the ability of the Government to meet this commitment, in part, because of numerous policy changes and agency reorganizations which have resulted in fractionated and uncoordinated programs -- programs responsive to political pressures of the moment. For instance, the Carter Administration's 1977 decision to defer reprocessing indefinitely represented a major policy shift which complicated and added uncertainty to the federal waste management program.

Nevertheless, a considerable amount of research and development work has been accomplished over the years. Much of the technology required to dispose of nuclear wastes has already been successfully demonstrated. International programs of commercial reprocessing and nuclear waste vitrification are currently under way and in place, as are research, development and demonstration programs for permanent waste disposal.

It is our view and that of the informed and involved scientific and technical community that the technology does indeed exist to enable the implementation of safe and environmentally acceptable waste management programs. More specifically, it is our view that there is enough information available to enable the Federal Government to proceed now on a conservative basis, to locate, design, construct and initiate the phased operation of a waste management system involving a geologic repository.

To quote from the National Academy of Sciences Report, "Energy in Transition, 1985-2010," which was released January 14, 1980:

> No insurmountable technical obstacles are foreseen to preclude safe disposal of nuclear wastes in geological formations. All necessary process steps for immobilizing high- and low-level wastes have been developed, and there are no technical barriers to their implementation.

That there are no technical barriers to the safe disposal of nuclear waste is a message that both the industry and the Federal government must communicate to the American public.

Senator McClure, in his statement introducing S.1662 on September 24, 1981, stated: "Congressional action is imperative to achieve any predictable result in the nuclear waste issue." Legislation is imperative for a number of fundamental reasons. To ensure the implementation of a national waste management strategy, a single lead agency or authority is needed for the national program, with a Congressional mandate to do the job, and an effective mechanism is required to assure the necessary coordination among the federal and state agencies involved. Legislation is also needed to ensure that changes in administrations will not result in changes of direction and unnecessary delays as in the past. Legislation is required to define the role of the states and Indian Tribes and to clarify the decision points at which compliance with the National Environmental Policy Act is appropriate.

There is an absolutely urgent need for nuclear waste management legislation. We believe Congress must act now to demonstrate to the public that the Federal Government can -- as it has promised for over thirty years -- safely manage nuclear wastes. In fact, Congress should have acted much sooner. The expeditious demonstration (in the form of a test and evaluation facility) of the technical ability to deal with high level radioactive wastes will go a long way toward restoring public confidence. We are encouraged by Senator McClure's remarks on the Senate floor on September 24, 1981 that an "approach of total confidence underlies the entire bill and is intended to insure that there can no longer be any valid question raised with regard to that complete confidence."

We believe that an immediate resolution of the waste management issue is needed to assure continued public acceptance of nuclear power and to accommodate the significant inventory of defense- and commercially-generated nuclear waste that has accumulated to date. Yet the specific implementation of the program does not affect the requirements pertinent to the licensing and operation of nuclear power plants. Accordingly, and since we are convinced that the technology exists for safe geologic disposal, continued power plant licensing need not and should not be tied to the implementation of the national waste management program.

Mr. Chairman, you and the co-sponsors of S.1662, and Senators Johnston and Jackson in co-sponsoring S.637, are to be commended for recognizing the urgency in adopting a national waste management plan. For the most part, we strongly endorse the elements of both S.637 and S.1662. As noted by Senator McClure in his September 24, 1981 statement, S.1662 includes the essential elements of S.2189 (and thus S.637), including the compromise and negotiated amendments to that bill. Since S.1662 incorporates and builds on many of the provisions of S.2189, we will focus our remarks on S.1662 today.

Of major importance, these bills recognize the need to expedite and facilitate a truly comprehensive nuclear waste policy and program, and S.1662, in particular, sets forth realistic schedules to achieve these purposes. These bills further have the necessary capacity to transcend individual Congresses and Administrations, providing a rational and reliable system for the long-term management of nuclear waste. Perhaps of even greater significance is their public acceptability. Both bills provide the public with assurances of safe waste management and will establish a system of meaningful communication and cooperation between the Federal government and the localities affected by this program. This program of interaction and education will increase public confidence and participation in the system, while retaining the necessary Federal control over ultimate nuclear waste policy decisions.

There are several important issues which any legislation concerning the implementation of a national waste management program must address: 1) Interim Away-From-Reactor Spent Fuel Storage; 2) Geologic Repositories; 3) State Participation; and 4) Financing Spent Fuel Storage and High-Level Waste Disposal. We would now like to address these issues separately.

1. INTERIM AWAY-FROM-REACTOR SPENT FUEL STORAGE

a. The Need for Away-From-Reactor Spent Fuel Storage.

The UNWMG, ANEC and EEI have strongly supported the creation of away-from-reactor (AFR) spent fuel storage capacity by the Federal government since the Carter Administration in April, 1977 deferred reprocessing. It is obvious that, sooner or later, utilities will no longer have room to store additional spent fuel in existing at-reactor spent fuel pools. In fact, the Department of Energy's own studies indicate that additional capacity will be necessary as early as 1986. In 1986, one of Carolina Power & Light Company's nuclear units, H.B. Robinson Unit 2, located near Hartsville, South Carolina, will run out of full core discharge capability even with the current expansion of storage capacity to the maximum extent. Prior to the operation of a nuclear waste repository, some other away-from-reactor location or locations for storing spent fuel will be needed to ensure continued reactor operation.

In the near term -- through 1990 -- there are limited options for providing additional spent fuel storage capacity. Of the several possible options, including new and existing AFR's and new at-reactor pools, only the use of existing AFR's appears to be available prior to 1990, taking into account economic, regulatory and technical considerations. In addition to this near-term feasibility, centralized AFR storage facilities which can accommodate the needs of many reactors create economies of scale, which are desirable to minimize the costs to electric ratepayers.

AFR's, therefore, are the most sensible near-term solution to the critical problem of inadequate spent fuel storage and disposal facilities -- a problem which must immediately be addressed. We consequently support the purchase, lease or construction of at least one Federal AFR as called for in §305 of S.1662. While we feel that the 2,800 metric ton limit on capacity imposed by this section may not be an adequate reflection of the actual need for interim AFR storage, this figure at least establishes a sorely needed first step toward the necessary storage capabilities. It would also be beneficial to operate several AFR's, so that they could be located on a regional basis. For these reasons, the treatment of interim spent fuel storage in S.637 is a preferable approach.

S.1662 calls for utilities to maximize, to the extent practical, on-site interim storage of spent fuel. They are already doing just that. Based on data from a recent DOE survey of 67 commercial nuclear reactors, 62 were involved in expanding spent fuel storage capacity by reracking. In fact, 15 reactors were reracking for a second time and 3 reactors were undergoing a third reracking. However, as you know, prior to 1977 utilities had planned to ship spent fuel to reprocessing facilities, and did not contemplate or provide for significant spent fuel storage capacity on site. Some of the older nuclear plants, H. B. Robinson among them, simply must look elsewhere for spent fuel storage. This short-term problem was created by an abrupt shift in Government policy in banning reprocessing, and notwithstanding a change in Administrations and policy, we still need Government assistance to provide an interim solution to a problem of the Government's making. However, as provided for in S.1662, the cost of this interim spent fuel storage would be borne by those utilities utilizing that service. We certainly agree with this provision.

b. Ownership and Operation of Existing
Away-From-Reactor Spent Fuel Storage.

If existing AFR's -- at Morris, Illinois; Barnwell, South Carolina; or West Valley, New York -- should be used to meet the near-term shortfall in spent fuel storage capacity, the question of who will own and operate the facilities must then be answered. There are three possibilities: the utilities, other private entities, or the Federal government.

While the utilities have the primary responsibility for providing themselves with adequate spent fuel storage capacity, the Federal government has the responsibility, in order to assure the continued, orderly operation of nuclear power plants, to provide sufficient interim storage capacity for those power plants that cannot reasonably provide adequate on-site storage. And as a practical matter, utility purchase of one or more of the existing facilities would be difficult for a number of reasons. Utilities have difficulty meeting their existing capital requirements, with utility construction budgets already stretching company financial capabilities. State regulatory commissions may not permit utilities to invest in AFR's, given the uncertainties which are still inherent in the back end of the nuclear fuel cycle. The participation of each utility in any consortium to purchase and operate an AFR would be subject to challenge by anti-nuclear groups in each state in which the utilities provide electricity. The purchase of the facility in any one of the three states, as well as the transportation of spent fuel into any one of these states from sources outside the state, would be likely challenged within the host state. There would also be significant organizational issues which would have to be faced for utility ownership. A utility group would further be faced with the issue of purchasing non-spent fuel storage facilities; Morris, Barnwell and West Valley include facilities other than spent fuel pools. It is unlikely that the current owners would be interested in selling only the AFR portion. Although utilities are not in the position to purchase one or more of the existing AFR facilities, they are willing to pay the full costs associated with AFR storage.

Expanded operation of existing non-reactor facilities by other private entities is possible, but General Electric, Allied General Nuclear Services, and Nuclear Fuel Services had previously announced that they do not intend to operate spent fuel storage facilities. In connection with private reprocessing, that decision has been reiterated to the Reagan Administration. It is unlikely that any change in that decision will occur in the foreseeable future. It is questionable whether another private organization would be willing to purchase them and operate a commercial AFR. The uncertainties of federal policy are too great.

The remaining alternative is federal operation of near-term AFR's. This proposition is embodied in Title III of S.637 and Title III of S.1662. This alternative has both logic and equity. It was the delays in federal decision-making and the changes in federal policies which created the spent fuel storage problem. New regulatory policies, extended licensing proceedings, and the Carter Administration's indefinite deferral effectively destroyed the privately financed commercial reprocessing option. Also, federal delays in implementing a waste management strategy resulted in the unavailability of facilities for the permanent disposal of spent fuel or high-level radioactive waste until at least the late 1980's. Thus, it is quite reasonable for the Federal Government to take the steps necessary to overcome the near-term gap between storage needs and storage capability.

The spent fuel storage issue must be dealt with not only in the context of the immediate need for interim storage capacity, but also in deciding how to deal with the valuable and strategic energy reserve contained in the spent fuel. Based on latest DOE estimates of spent fuel which will be generated prior to the year 2000, the EEI has calculated that the recoverable energy content of this spent fuel -- if only recycled once for use in present light water reactors -- will equal the energy equivalent of nine billion barrels of oil. (This compares with the less than one billion barrels envisioned for the strategic oil reserve.) The capability for longer-term, retrievable spent fuel storage, as described in §501 of S.1662 and as would be provided for in Title IV of S.637, would also serve as a strategic energy reserve, husbanding the energy resources inherent in the spent fuel. The cost of this strategic reserve would be paid for by the utilities who deliver the spent fuel. Spent fuel would be held in trust by the Federal Government both to ensure the security of high-level radioactive waste and to conserve the considerable energy resources contained in the spent fuel for future generations. This commendable program, however, should not be seen as a replacement for, nor must it overshadow, the more immediate need for interim AFR storage capacity. Neither must it replace or delay the expedited implementation of a permanent geologic repository program.

2. GEOLOGIC REPOSITORIES

Contrary to the public's perception that little progress has been made in solving the waste management problem, a considerable amount of research and development work has been accomplished during the past few years. The technology required to dispose of nuclear wastes has already been developed. Key steps in the process are today in operation on a commercial scale both in this country and abroad. The technology does indeed exist to enable the implementation of a safe and environmentally acceptable waste management program. One of the conclusions of the International Fuel Cycle Evaluation (INFCE) study group was that radioactive waste disposal can be carried out without undue risk to man or the environment. In fact, there appears to be a growing consensus among both critics and proponents of nuclear energy alike that it is the institutional issues, rather than the technical ones, which pose the greatest risk of delaying implementation of waste management strategies. It is time that we progress from the research phase and enter the operational phase of nuclear waste management. It will, however, require Congressional action to resolve the institutional barriers which impede this progress.

The reasons why the utilities have consistently urged the Federal Government to implement promptly a waste management program are principally neither economic nor technical. Spent fuel can continue to be stored safely and relatively inexpensively in spent fuel storage pools, both at reactor sites and at other locations. Both spent fuel and vitrified high-level wastes can be stored for centuries safely in above-ground or sub-surface "temporary" storage. From a resource conservation disposal standpoint, it makes little sense to dispose of spent fuel permanently, with its enormous energy value. Until spent fuel is reprocessed on a large scale with the generation of high-level radioactive wastes, there is not a great volume of waste available for permanent disposal. Despite this, however, the public equates the absence of a disposal facility with the absence of a solution to the nuclear waste management "problem." In several states, this perception has been translated into prohibitions on future reactor licensing. The best way to change this perception is to have one acceptable permanent waste management facility in being. Once the public can see a geological repository under way, we believe that this perception will change.

Section 407 of Title IV authorizes the establishment of a test and evaluation facility ("TEF"). We agree that an integrated TEF could provide early technical data on repository designs and site specific information, and serves as a fast way of demonstrating to the public that the technology exists to dispose of nuclear wastes in a safe manner. However, a TEF should not be a separate program but rather an integrated extension of unlicensed activities as are contemplated by the Nuclear Regulatory Commission's rules for licensing a geologic high-level waste repository (10 C.F.R. Part 60). Thus, we support the concept expressed in S.1662 of a TEF that does not delay the overall geologic repository program or add significant costs to the waste management program, but rather contributes to timely site characterization, evaluation and licensing activities at a proposed repository site.

Insofar as the use of radioactive materials at TEF's is concerned, we feel that the use of radioactive materials is clearly preferable. Heaters can be used to obtain thermal response information, but other activities such as field tests of waste, rock interactions and waste handling may require the use of radioactive materials. In simulating waste handling for example, it is important to use radioactive materials in order to demonstrate the performance of surface and subsurface handling equipment and the operations associated with a range of activities from receipt of materials to final emplacement under actual operating conditions. We believe the proposal to use several hundred canisters of vitrified radioactive waste in a TEF is a reasonable plan and should be permitted. Furthermore, for purposes of public demonstration, we believe that the TEF should be designed for and receive both high-level reprocessing waste and spent fuel.

Finally, we would like to add a word about National Environmental Policy Act (NEPA) considerations. Any legislation on nuclear waste management should make clear what constitutes and what does not constitute a major federal action for NEPA purposes. It is our view that actions short of the final site selection by DOE for a permanent repository and licensing of a permanent repository by the NRC should not be considered to be major federal actions. Environmental studies would, of course, be conducted by DOE during the site selection process (as suggested in §404 of S.1662), but a full-scale NEPA environmental impact statement (EIS) should not be required until final site selection has taken place and authorization of the Congress is requested for construction of a repository. This is the decisional point at which relevant information on environmental impacts and alternatives should logically be presented to the decisionmakers in a formal, final EIS after public participation in that process. To require one or more EIS's earlier in the process is an unnecessary burden on the site selection process and would retard the repository program significantly. While S.1662 attempts to deal with this problem of NEPA requirements, it fails to do so with sufficient clarity.

It is also essential that all discussions of environmental assessments, as in §404(b)(1)(A) of S.1662, be clearly indicated as not adding additional substantive law regarding environmental reviews but rather be described as clarifications of how DOE must comply with NEPA. Otherwise a court could hold such a provision to be an additional substantive provision in law and read into it procedural requirements and substantive standards never contemplated by Congress.

Consequently, we approve the concept of clarification of NEPA requirements like the one incorporated in §403(d) of S.1662, although additional clarification is required. Similar clarification should be provided with respect to AFR's or spent fuel repositories acquired/constructed and operated by the Federal Government. Environmental considerations need be carefully considered but NEPA should not be a procedural quagmire and instrument of needless delay.

3. STATE PARTICIPATION

The issue of state participation in the siting and construction of permanent waste facilities or interim away-from-reactor spent fuel storage is a preeminent institutional issue which needs to be resolved in implementing a national nuclear waste management program. While the disposal of nuclear waste is a national problem and federal responsibility, we recognize that the states and in some instances Indian Tribes have a legitimate interest in the way in which it is resolved. Therefore, we believe an opportunity for constructive state participation is an essential element of the federal waste management program. The need for state participation is fully recognized in both S.637 and S.1662.

The role of the states in federal decision-making is a delicate and sensitive area, and the resolution of this issue presents a classic test of our federal system of government. We believe a cooperative federal-state relationship can be fashioned which equitably balances the legitimate interests of the states and the national interest, and consequently approve of the approach detailed in Title VII of S.1662, whereby DOE and individual host states arrive at a "cooperative agreement." Such an agreement will implement the rights of states to participate in a process of consultation and coordination, based on public health and safety concerns, in all stages of the planning, siting, development, construction and operation of a site.

Furthermore, siting waste repositories is certainly not the only issue where state and local wishes must be balanced against the broader national interest. The Congress should carefully consider the historical federal-state relationships and the precedential nature of this legislation. There are a number of principles which we believe should serve as guidelines for constructive state participation without eroding the overall federal interest. In part we looked to the 1978 amendments to the Outer Continental Shelf Lands Act in developing these principles:

1. Potential host states should be able to participate early in the siting process; however, no states should be able to prevent a federal agency from performing exploratory work, including drilling, to identify and characterize potentially favorable national repository sites.
2. Federal assistance should be provided to the potential host states to develop the technical expertise to allow the states to participate in the siting process in an informed and constructive manner.
3. States should be provided the opportunity to submit recommendations to the responsible federal agency relating to environmental protection, health and safety issues, or fiscal and social impacts. The responsible federal agency should be

> required to accept the state's recommendations if it determines, after having provided the opportunity for consultation, that they provide for a reasonable balance between national interests and the well-being of the citizens of the affected state. The federal agency should communicate to the state, in writing, the reasons for its determination to accept or reject the state's recommendations, or to implement any alternative means identified in consultation with the state to provide for a reasonable balance between the national interest and the well-being of the affected state.

Based on these principles, we support a process such as that suggested in Title VII of S.1662 that requires the DOE to notify, consult, and coordinate with the affected states wherein a potential site for a repository has been identified. Such a process should be meaningful and substantive. DOE should be authorized to enter into agreements of understanding with the states which clearly define the process and the responsibilities of the parties involved.

Any state veto would be against the national interest, even if such a veto were coupled with a federal override by the President or Congress. An outright state veto may unduly delay progress towards resolving the waste management issue. Sections 308(b) and 701(f) of S.1662 do give the Governor of an affected state the right to object to the selection or authorization of a particular site, halting further work at that site pending Presidential or Congressional approval. In order for this procedure to truly aid the flow of communication and the accomplishment of a reasoned outcome, the Governor should be required to submit not merely a lone objection to the selection, but also substantive comments in support of this objection and a recommendation as to steps that should be taken to accommodate his objection. We also believe that any Congressional veto should be in the form of an action on the part of both Houses, not a one House veto as provided in §701(f)(3).

4. FINANCING SPENT FUEL STORAGE AND HIGH-LEVEL WASTE DISPOSAL

Perhaps the most novel aspect of S.1662 is the financing arrangement in Title VI. A mandatory fee in the amount of one mil per kilowatt-hour of nuclear generated electricity is proposed to be collected by utilities operating nuclear plants. The amount collected would finance the implementation of commercial nuclear waste management facilities. We note that if such a charge had been levied during 1980, the total amount collected would have been more than $250,000,000. Based on current projections of nuclear power plants commencing operations in the next few years, in 1990 a fee of one mil per kilowatt-hour would generate over $800,000,000 in that year. This appears to be a reasonable estimate of the necessary financial requirements for an adequately funded waste management facility, and, in fact, may be more than what is required.

We in the utility industry are not enthusiastic about serving as tax collectors for the Federal government; in fact, we view it as a undesirable precedent. We also do not view this scheme as the most equitable financing arrangement. Since a different number of kilowatt-hours will be generated by the same amount of fuel in different plants, depending on design differences, the length of time between refueling outages and the operational history of the plant during each fuel cycle, a different fee will necessarily be collected for the same number of kilograms of spent fuel generated from different plants. Furthermore, since the fee proposed in Title VI of S.1662 would only be collected prospectively, these future payments do not accommodate the existing spent fuel inventories.

On the other hand, the assessment of a one mil per kilowatt-hour fee has the distinct advantage of simplicity, ease of administration and certainty of an equal assessment to all beneficiaries of the electricity from nuclear fuel, and it ensures that the waste management program will go forward in a timely manner with adequate funding. Thus, on balance, I believe that the utilities would be willing, somewhat reluctantly, to support such a mandatory fee on the electricity generated from nuclear power in return for the firm contractual commitment of the Federal government, backed by the establishment of an expedited waste management program, to take title to the radioactive waste or spent fuel for disposal. However, we also believe that a one-time fee should be paid into the waste management fund at the time of delivery of spent fuel or radioactive waste from spent fuel removed from reactor cores prior to enactment of this Act, otherwise, future customers utilizing nuclear generated electricity would pay for disposal of spent fuel from which they have received no benefit. Most utilities have taken into account the need to make such a future payment on spent fuel already removed from the reactor of their operating nuclear plants. Thus to the maximum extent practical, the actual beneficiaries of nuclear fuel would pay for the disposal costs.

We firmly believe that the legislation should authorize and direct the Secretary of Energy to enter into contracts with all nuclear power plant operators by which the Government agrees to take title to and responsibility for radioactive wastes or spent fuel, in return for the commitment of the utility to collect from its customers and pay to the Treasury a fee of one mil per kilowatt-hour of nuclear generated electricity for all nuclear fuel removed from nuclear reactors after the enactment of this bill. The contract should require a fee, generally equivalent to an average one mil per kilowatt-hour charge, to be paid by the owners of spent fuel removed from nuclear reactors prior to enactment of this bill.

While we believe the one mil per kilowatt-hour charge to be a reasonable estimate, it may in the future be too high or too low. There should be a provision by which the Secretary of Energy annually recommends to the Congress whether an adjustment should be made in the amount of the fee. The fee should only be changed by an Act of the Congress.

As provided in §602, the Secretary is authorized to borrow necessary funds from the Treasury and to pay an appropriete interest rate thereon. Conversely, the Secretary should be responsible for the investment, in Treasury instruments, of any excess amounts in the fund, and for the collection of appropriate interest paid on such investments.

There is an additional aspect of the cost of waste disposal facilities which we believe should be treated in legislation. Financial assistance should be made available to assist State and local governments of areas affected by waste disposal facilities. This assistance should be provided to offset any direct or indirect costs incurred because of environmental, economic or other impacts resulting from the facilities. The cost of such financial assistance should be financed from fees collected from the utilities and paid to the Department of Energy as provided in Title VI of S.1662. The purpose of this financial assistance should include:

(i) financing meaningful State and local participation in all stages of the planning, siting, development, construction and operation of a facility;

(ii) increasing public knowledge of facility planning and impact management;

(iii) making payments in lieu of taxes, to offset, for example, increases in necessary housing, schools or public services; to aid the construction and maintenance of highways; and to enhance public safety and emergency response capabilities.

The State and local community which hosts a nuclear waste repository is performing a service for all citizens who benefit from the economical and environmentally sound generation of electricity from nuclear power and they should be reimbursed for such reasonable costs.

With respect to management of the nuclear waste program, I might mention an issue that need not be resolved in this legislation, but must be addressed soon. S.1662 assumes that the Secretary of Energy will be responsible for the waste management program, although we are all aware that the Secretary is busily preparing to dismantle his Department. We urge the Congress to consider establishing an independent, self-financing, mission-oriented authority -- such as a public corporation -- for implementing a national waste management program. We would like to see utility representation on the

Board of Directors of such an authority to monitor the expenditure of money on the waste management programs to ensure that the program is operated on a sound financial basis. In fact, even under a DOE administered program, the utility users of the waste management services should be provided a mechanism for input to the financial administration of the program.

In summary, while the electric utilities want to make it clear that they do not endorse the precedent of collecting a tax for the Federal Treasury, we recognize that nuclear waste management is a unique Federal responsibility resulting from the joint effort of the government and industry to utilize nuclear energy for the public benefit. We do not see this financing arrangement as a precedent, but rather an innovative mechanism for ensuring the financial viability of a long-term Federal waste management program, and thus we can endorse it.

CONCLUSION

In conclusion, we cannot emphasize strongly enough the need for action by Congress this year in implementing a federal waste management program. Interim storage capacity for spent fuel should be acquired as soon as possible. The site selections for proposed geologic repositories, and an integrated TEF at one of the proposed locations, should proceed on an expedited program. The desirability of long-term, retrievable spent fuel storage capacity must be recognized. A definite schedule for progress, such as that laid out in S.1662, will help in ensuring that present action be taken quickly and that future action not be delayed. This "schedule of events" will help ease a federal waste management policy into reality.

It is essential that legislation be enacted to ensure that this type of comprehensive nuclear waste disposal program is established. Without such legislation, the issue of state participation in the selection and operation of facilities will remain unresolved. Furthermore, without legislation on the subject clarifying when NEPA is appropriately applied, any program undertaken by DOE could be challenged ad infinitum on NEPA grounds. These issues must be confronted, and a program implemented. We believe that S.1662 encompasses the essential elements of a waste management program and, with the modifications we have suggested, urge your prompt action on this legislation before the end of this year.

Again, we appreciate your commitment to guiding waste management legislation through this session of Congress. We stand ready to assist the Committees in any way we can.

Senator SIMPSON. The hearing will come to order.

Mr. Smith, you expressed somewhat reluctant support for the funding mechanism in S. 1662. If the bill also included a direction that DOE enter into contracts with utilities to accept their spent fuel for long-term storage or alternate disposal in return for the mandatory fee arrangement that is proposed in the bill, would that at least relieve some of your concern?

Mr. SMITH. Yes; it certainly would. I believe that on balance the utility industry would accept the proposal of the 1 mill charge for funding the facility and its operation if as you say there were contracts that specifically spelled out such things as the date when the Government would take title and possession of the fuel; exactly what the fee was supposed to cover, what services were included and if it were clearly understood as I gather is the intent of this legislation, that there would be an one time payment, that there would not be an open door with the possibility of retrospective charges at some indefinite time to the future.

Senator SIMPSON. What are your views on the procedures to expedite the approval of additional onsite spent fuel capacity? Are these procedures necessary if utilities are to meet the policies under the bill that they have the primary responsibility for interim spent fuel storage?

Mr. SMITH. I think the expedited procedure is necessary for those utilities that have sought amendments to their licenses in order to expand the capacity of their existing storage rights. If you look at what has already happened, you will see—and this is in accordance with a recent survey done for the Department of Energy by DuPont Co.—that out of 67 utilities surveyed, 62 with operating reactors have sought amendments to increase their existing onsite storage capacity.

What has happened is the length of time it has taken to get those license amendments approved has gradually been extended and it has gotten longer and longer.

We would favor the expedited proceeding as described in this bill for license amendments and from the standpoint of making it perfectly clear exactly under what circumstances the Secretary would receive fuel from an existing unit at which it was not practical to wait to seek to add additional onsite storage and the criteria now spelled out under section 311 be included in the determination of practicality under section 303 where it is clear that economic considerations are a part of the criteria.

What one sees is today and in our case, we will run out of full core discharge capability in 1986 and it would probably take about 8 years to build a new pool on the existing land we have at our Robinson site. I think you would be unwise if you planned for anything less than 4 years for licensing and about 4 years for construction.

I think it should not be required in every case, that the utility go out and try to build another pool and another pool at their existing locations.

Senator SIMPSON. At your Robinson Plant, you have no way to obtain additional expanded storage capacity in time to meet that 1986 deadline?

Mr. SMITH. That is our problem. On the DOE list of plants and this is in their report, on page 11 of that report there are probably 20 some units listed. We have the first two listed that run out of spent fuel storage capability onsite. Both our Robinson No. 2 and our Brunswick No. 1 are scheduled to run out of full core discharge capability in 1986.

We have done everything that could be done. We have reracked those pools twice. We are the only company I know of that has been able to ship spent fuel from one State to another, from one plant to another.

Senator SIMPSON. Would the mandatory fee that is proposed under this legislation be automatically recoverable from your ratepayer?

Mr. SMITH. If it is mandated from Congress, yes. The situation today is, some companies are collecting a fee which is based on current DOE estimates for the cost of spent fuel storage and permanent disposal. Others have not allowed—our position is unique whereby in one jurisdiction we have been allowed to collect the fee but last week the Federal Energy Regulatory Commission denied us the right to collect that fee.

If it is mandated by Congress it would flow through in all jurisdictions.

Senator SIMPSON. It is good to know you have a basic satisfaction with the provisions of the bill in that respect.

Do you support the Federal away-from-reactor provisions in this bill?

Mr. SMITH. I do, Senator Simpson.

Senator SIMPSON. I thank you, Mr. Smith. You may leave as you desire. I would ask the remaining members of the panel to go in order so next would be Mr. David Berick.

STATEMENT OF DAVID BERICK, WASHINGTON REPRESENTATIVE, ENVIRONMENTAL POLICY CENTER

Mr. BERICK. I want to thank you and Senator McClure for the opportunity to testify this afternoon. With the understanding my testimony is entered in the record, I will try to summarize briefly.

After watching this debate on Capitol Hill on nuclear waste legislation for about the last 3½ years, it has become sort of obvious to me that we are really trying to tackle two separate nuclear waste problems.

The first which was brought into focus with the California moratorium in 1976 is that the failure to close the back end of the fuel cycle has cast a political cloud over the future development of nuclear power. Efforts to disperse that cloud have traditionally been proposed since 1976 for fairly expeditious treatment of the waste problem.

On the other hand we have a very real technical problem of how to physically develop licenses and construct geologic repositories within the time frame of the license period of nuclear powerplants which is something which has been explored at some length in the waste conference proceeding before the NRC.

What I would like to explore are the tradeoffs between efforts to get something as early as possible in an attempt to solve the political problems of nuclear waste disposal as it relates to the continued development of nuclear power and what that means for the long-term success of the waste program.

In the bill there are three major areas where these tradeoffs occur. The first and something that has already been discussed by the previous panel is the very quick selection of sites. We are talking about selecting two sites in 1982 and one more in 1983, a very rapid selection which will lock us into existing sites.

If one looks at the additional limitations on the fact that the NRC and DOE cannot consider other sites for this first repository, we are getting ourselves into a situation where those sites may not pan out.

We may have a problem as Dr. Hernandez mentioned before where we might discover they are not suitable.

Another area of great concern is the test and evaluation facility. We have an attempt to demonstrate within a very short period of time that we can dispose of at least 300 cannisters of waste. The problem is we do not learn anything from that facility in terms of the mechanics of a repository that we would not learn from the standard site characterization activities except maybe for some logistical information.

As Dr. Cotton pointed out, we learn that information too late in the process to have any impact on the preparation of the application or development of that first repository.

In the DOE's submission in the waste confidence proceeding, they suggested it would take several thousand cannisters in the first 5 years of repository operation to confirm their materials handling capability.

The third area where I think we run into this problem of tradeoffs between desire for expeditious action and long-term success of the program is on the schedule. That has been something which has been discussed at great length.

I would like to bring up the point of the latest date in the bill for site selection which is 1983. That is when the Secretary is supposed to pick the latest or last site. If we simply add the 40 months it would take for site characterization and we do not include the time for public hearings which the bill envisions and time to compare the other sites and prepare a final site selection report, we end up in 1986, at least 14 to 15 months beyond the date envisioned in the bill.

We have these conflicts about what is realistically within one's capability to carry out and, on the other hand, the desire to come up with early dates and accelerate the process.

They are obvious conflicts and to some extent I think they are irreconcilable. One has to decide which route one is going.

I want to say a final word about the provisions in the legislation for long-term and short-term storage.

We are very sensitive to Senator Johnston's and Senator Jackson's concerns over a premature commitment to a disposal technology. It is certainly something on the minds of everybody as to when we know enough to go ahead with the program.

I do not believe we solve that problem by deferring it, that what is required is a conservative and accountable program that is going to develop that information rather than heading off toward a series of disposal options that would preclude us from actually getting the answers.

On the AFR issue, one of the things that struck me about previous remarks is this is not a new issue. We have known about it since 1975. The issue really is not whether it is the away-from-reactor or at-reactor. There are a variety of issues involved in that decision upon which I myself and other environmentalists have very strong views, not the least of which are the things included at the end of my testimony about transportation, the proposals the DOE has made as to the weapons program.

The real issue that has never really been clarified on this entire spent fuel program is why it is more expeditious for the Federal Government to carry out this interim spent fuel storage program vis-a-vis the private sector.

There has always been this assumption that somehow the Federal Government can license it faster; it can clear it through the environmental impact statement reviews faster. If time is really of the essence, I think the record shows the Federal Government cannot do it faster and by proposing a Federal AFR program is making the problem significantly greater than if we were to bite the bullet, that we draw the line and send the signals to the private sector that they have to do it.

[The prepared statement of Mr. Berick follows:]

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TESTIMONY BEFORE THE COMMITTEE ON ENERGY & NATURAL RESOURCES AND THE SUBCOMMITTEE ON NUCLEAR REGULATION OF THE COMMITTEE ON ENVIRONMENT & PUBLIC WORKS

By
David Berick
Washington Representative

October 6, 1981

On behalf of the Environmental Policy Center, I wish to thank Senator McClure, Chairman of the Energy & Natural Resources Committee, and Senator Simpson, Chairman of the Nuclear Regulation Subcommittee of the Senate Environment and Public Works Committee for the opportunity to testify today on S.1662 "The National Nuclear Waste Policy Act of 1981" and S. 637 "The Nuclear Waste Policy Act". The Environmental Policy Center has actively participated in the debate over national nuclear waste policies since 1974. In recent years, we worked for the successful passage of the Uranium Mill Tailings Radiation Control Act of 1978 and the Low Level Nuclear Waste Policy Act which was passed in the final days of the 96th Congress. While difficulties remain in implementation of sound nuclear waste programs even in these two areas it should be pointed out that progress is being made.

While environmentalists have been accused of attempting to use the nuclear waste issue to emperil future development of nuclear power, this hearing today attests to the fact that there is not now a national system for adequately managing and disposing of high-level radioactive wastes from either the commercial or defense nuclear porgrams. Such a system will, in fact, not be available until the next decade at best and probably not until the year 2000. The chaos which has prevailed for the past decade of yearly or even monthly changes in nuclear waste policies and programs by the Congress and the Executive Branch is clearly undersireable.

Much of the confusion and controversy stems, in my view, from almost schizophrenic inability to decide which of the two nuclear waste problems to attack. The first, which was brought into sharp focus by the 1976 California moratorium on new nuclear plants pending resolution of the waste problems, is the failure to close the back end of the fuel cycle and its political impact on the future of nuclear power. Attempts to disperse this dark cloud have historically called for quick and often disappointing results. Members of the Committees are all too familiar with the receding dates for intended operation of the first geologic repository which have graced federal nuclear waste plans prominently since the National Terminal Waste Storage Program was formed in 1976. At that time NTWS predicted a 1985 start-up for the first of six repositories.

Equally unproductive have been proposals for early unlicensed demonstrations such as proposed over the years for the Waste Isolation Pilot Plant (WIPP) in New Mexico in the attempt to demonstrate the availability of disposal technology. Changing expectations and schedules for early demonstration work at WIPP have clearly increased the controversy and decreased the speed of the project and raised warning flags for other states which are potential waste sites.

The second nuclear waste problem, and I think by far the more difficult, is the actual construction, licensing, and operation of a system of repositories capable of accepting the volumes of waste which have been, and will be, generated by both commercial and defense programs. This second issue has been explored in great detail in the last two years in the NRC's Nuclear Waste Confidence Proceeding (PR-50,51; 44FR61372). This proceeding has provided an important opportunity to assess what it required to physically emplace large volumes of radioactive waste (upwards of 72,000 metric tons of spent fuel will have been generated by 2000) within a period to time covered by reactor licenses. This is a fundamentally different question than that raised by the need to demonstrate that the technology is available. Efforts to demonstrate solutions to waste disposal in the short run are not necessarily compatible with those needed to have a system of geologic repositories actually in operation by or near the end of the century.

Nothing so clearly presents this paradox than the bill before your Committee today, S. 1662. For example, although S. 1662 contains a series of commendable procedures like site characterization it also contains an accelerated schedule for development of the first full-scale repository: a schedule which would lock DOE into selecting three sites from among those immediately available -- Nevada Test Site, Hanford, and a salt site in the Gulf Coast or Paradox Basin regions. On the other hand, S. 1662 requires DOE to carry out a comprehensive National Site Survey Program in cooperation with the U.S. Geological Survey to find sites by 1986 for the second repository, and I emphasize that this comprehensive site survey is for the second repository. For a technology which depends primarily on the integrity and behavior of a geologic formation to contain the radioactive wastes, this marked difference in approach in S. 1662 to the siting of the first and second repositories gives every appearance of attempting a short-term political solution at the expense of long-term success and credibility.

It is worth more than a little of the Committee's time to look at the tradeoffs contained in S. 1662 between the attempt at short-term results and the probability of long-term success. Aside from the obvious limitation on the univers of sites from which DOE must select two initial sites by June of next year and another six months later, S. 1662 locks both the DOE and the NRC into this set of sites no matter how unsuitable any of them are discovered to be. While it is clear that this is as much an attempt to limit the application of the National Environmental Policy Act requirements that alternative sites be considered, the Committees should also be mindful of two other less obvious liabilities to these provisions. The first is noted in the preamble to the NRC's procedural rule on the licensing of geologic repositories (46 Federal Register 13971, February 25, 1981). The NRC noted that need to review alternative sites may also be required to carry out NRC's obligation, which many would support, under the Atomic Energy Act to protect public health. An additional liability of this arrangement is that DOE's credibility in establishing technically and politically defensible sites will be greatly undermined. Since the disposal technology depends upon the site specific geology and since local political opposition will necessarily revolve around the merits of specific sites, undermining DOE's ability to defend its selection of sites can only damage the credibility of the federal nuclear waste effort.

DOE and NRC site selection and approval are further jeopardized in S. 1662 by the construction of a demonstration or Test & Evaluation Facility (T&E) at one of the initial two sites; DOE could not possibly complete a site-specific design for such a facility within the year required except at one of these two sites.

Construction of T&E facility is clearly one of those attempts to demonstrate early progress. As a research facility, it will provide no information on at-depth geological behavior that cannot be determined, and in fact must be determined, through standard site characterization procedures. Even then, any information provided by the T&E facility would be irrelevant to the development and licensing of the first repository since it will not go into operation, under the schedule in S. 1662, until the same date as NRC licenses the first repository. The only conceivable use of the T&E facility would be early materials handling experience, but it is doubtful that the 300 canisters would satisfy that need since it would come after the design of the first repository had been finished and licensed by the NRC. If material handing experience is needed, it must clearly come much earlier than the 1988 operational date of the T&E facility.

So much for the benefits of the T&E facility, now for the liabilities. The T&E facility clearly violates a fundamental concern discussed in NRC's procedural rule notice. The notice states that "NRC continues to believe that site characterization of several sites will prevent premature commitment by DOE to a particular site, and will assure that DOE's preferred site will be chosen from a slate of candidates that are among the best that can reasonably be found." A T&E facility is not only a premature commitment to a site, but completely distorts the site selection and approval process. By putting one site on a different technical and procedural footing than the others, S. 1662 makes something of a sham of the NRC characterization requirements, risks obvious political opposition from the state with the "chosen" site, and runs the risk that the additional expenditures at the T&E site will be at the "wrong" site after NRC finally gets around to license review. If the T&E facility is not intended for expansion into a full-scale repository, and there is nothing in S. 1662 to indicate otherwise, it effectively locks DOE out of one of the three available repository sites; producing a shortfall of at least one site for NRC's alternatives analysis and a waste of a precious commodity -- potential geologic repository sites.

In short, the T&E facility concept proposed in S. 1662 has very little to say for itself except as a gamble to effect an early demonstration of waste emplacement and offers a number of serious liabilities.

A related series of long-term pitfalls can be found in the accelerated development schedule for the first repository; a schedule which calls for NRC to license the repository some three and three quarter years earlier than DOE's estimate filed in the NRC Waste Confidence Proceeding (Figure III-2, DOE PS, 4/15/80).

For those who believe that the DOE schedule is over pessimistic, it should be noted that it does not provide for time for DOE to sink a shaft and perform at-depth characterization required in NRC's final procedural rule, recommended by the U.S. Geological Survey and the National Academy of Sciences and appropriately required in S. 1662 itself. DOE estimates that at-depth characterization would add some 40 months to the schedule divided between 24 months for shaft construction and installation of experimental equipment and 16 months for testing and evaluation of data.

Because of the controversy over how fast a first repository can or should be scheduled, it is worth exploring some of the components of that process and how it relates to the schedule in S. 1662. Although S. 1662 sets two early dates for selection of potential sites for characterization, these dates are not good indicators of when a final decision can be made. Different sites will be on different timetables for completion of each aspect of site review and approval. The final site selection decision is necessarily dependent upon the slowest, or longest, site review.

Although S. 1662 requires the President to select a final site by January 1, 1985, the set of available sites simply cannot be characterized and reviewed that rapidly. DOE estimated in its Waste Confidence Filing that a final Detailed Site Characterization Report could be filed for the earliest site, Hanford, by January 1986, Gulf Coast Salt by June 1987, Bedded Salt by July 1988, and the Nevada Test Site by September 1988. The final decision point, according to DOE's schedule would come 21 to 24 months later after preparation of a final Site Recommendation Report and a final decision accompanied by public hearings in the affected states as also provided for in S. 1662; around March, 1987.

If one ignored the possibility of the President exercising his opportunity to delay selection of initial sites for characterization by 6 months in Sec. 403 of

S. 1662, and ignored for the moment the need for DOE to prepare a site selection report and to hold public hearings, and simply added the 40 months needed for site characterization and evaluation activities to the January 1, 1983 date proposed in the bill for selecting the third site; the President could not have the information necessary to make a final site selection decision until March or April of 1986 -- a full 16 months after the schedule in S. 1226. At the risk of belaboring the point, even if sixteen months were somehow chopped off of DOE's characterization activities to bring it in line with the schedule in S. 1226 time would still have to be added for preparation of the selection report, public hearings, and Presidential decision.

In either case, cutting out site characterization activities including the need to write an environmental impact statement at the initial site selection stage, as proposed in S. 1662, does not necessarily save very much time in the repository schedule. As the NRC noted in its procedural rule, much of the same information needed to prepare a site characterization plan would be contained in the EIS. In fact, NRC added a footnote to the appropriate section of the regulations (Sec. 60.11) that information required in the Site Characterization Report including criteria and methods for site selction, review of alternative sites, and participation of state and local governments could all be included by reference from the EIS. The consequences of DOE's failure to address the full range of technical issues raised by an abbreviated site characterization program during the NRC licensing hearing further argues for a complete characterization effort.

Following site characterization, DOE estimates that an additional 21 to 24 months are required for final decision and public hearings. While some of these procedures are implicitly and explicitly acknowledged in S. 1662, the length of time necessary to complete these activities is not allowed for in the bill's schedule. It is important, again, to point out that cutting the period of time reserved for these functions does not necessarily save very much time in the overall repository schedule. The most obvious conflict is the need to begin site specific repository design work on the site finally chosen for the repository and responsive to the information gathered during site characterization. This site specific design work, necessary for license application to the NRC, simply cannot be conducted in advance of final characterization and site selection. Also needed for license application are the resolution of a host of technological issues ranging from how repository shafts and boreholes will be plugged to completion of work on waste form and package to nuclide migration. These outstanding technical issues have been summarized in the "Earth Science Technical Plan" prepared by DOE and the U.S.G.S. and in a DOE and Battelle report entitled "Status of Technology for Isolating High Level Radioactive Wastes in Geologic Repositories" (DOE/TIC 11207). More detailed discussions of these issues can be found in the ONWI-9 series of quarterly reports on technical progress.

The schedule in S. 1662 leaves little leeway for these issues to be resolved in sufficient detail to support an application to the NRC for the first repository. They are no less important in terms of the success of the application than the suitability and availability of a specific site. The DOE schedule submitted to the NRC Waste Confidence Proceeding suggested that some of these issues, such completion of waste form research, would not occur until 1987; again a date well after S. 1662 would have DOE submit an application to NRC (March 1985).

A similar problem also surrounds the requirement in S. 1662 that the Commission act on the license application within 36 months, compared to a DOE estimate of some 48 months. Information from DOE and NRC indicates that the amount to which this period can be shortened is directly related to the degree information can be obtained from site characterization activities and NRC familiarity with those activities...an additional argument not to exempt the T&E

facility from site characterization requirements as proposed in S. 1662. As in the cases cited above, efforts to arbitrarily limit the period of licensing review may not save any time in the overall repository schedule. In this case, DOE anticipates that it will take a minimum of two years, following submission of the repository license application to NRC to complete Title I and Title II detailed design specifications sufficient to solicit competitive bids for construction services and equipment bids. DOE estimates that 12 to 15 months would be required to complete each contract under competitive bidding procedures; a period of at least 3 years total.

Although the procedures for site characterization, consultation with states, and NRC licensing are commendable, the dates proposed in S. 1662 for final selection of a repository site (January 1, 1985) and final NRC approval of the repository construction application (January 1, 1988) are unrealistic and counterproductive to successful licensing and development of a full-scale repository. The schedule would be optimistic even if only the most easily developed site were chosen. In this event, Hanford could possibly be selected by January, 1986 according to DOE's estimates, a year after S. 1662 provides. Since several sites must be reviewed, hearings held, selection reports completed, and decision, this date is far too early.

The same can be said for the idea that NRC can approve a license by January 1, 1988. Allowing for a full 40 months for site characterization but otherwise assuming DOE's reference schedule (Table III-2) without additional delays or contingencies, license approval could be granted by June 1994 with operation by the year 2000. Similarly, the schedule in S. 1662 does not take into account parallel activities such as site specific design, contracting, or resolution of non-site related technological issues which occur alongside site selection and licensing actions and are necessary to achieve repository licensing and operation.

A word should be said here about yet another nuclear waste policy paradox contained in S. 1662; the inclusion of Monitored Retrievable Storage (MRS). These long-term storage facilities are the very antithesis of the accelerated geologic repository program which is the focus of the bill. It is completely contradictory to propose on the one hand that the technology is so well understood and the licensing and social decisions so easy that a first repository could be licensed by 1988; and on the other include a program for long-term storage predicated on the idea that the technology is not available and the decisions necessary to site such a repository cannot be made for the forseeable future.

I am very sensitive to Sen. Johnston's and Sen. Jackson's concerns, as expressed in the bill S. 637, over the many uncertainties surrounding geologic disposal and their interest in delaying a potentially irreversible commitment to that technology as are other environmentalists. However, concerns over the adequacy of geologic disposal technology must be resolved not by deferring utilization of that technology, but through a conservative and accountable repository development and licensing process.

Additional safeguards can, and are being, designed into the repository system. DOE, for example, anticipates a five year initial shakedown period once the repository opens during which waste handling capabilities will be demonstrated and repository performance can be confirmed. Repository drifts are expected to be kept open without being backfilled for easy retrievability for at least five years and this period could be extended. The availability of long-term storage need not and should not serve as an excuse for an inadequate geologic repository program, nor be held out as a safety net in anticipation of failure.

If nothing else, the NRC's waste confidence proceeding has amassed a significant amount of evidence from DOE and utilities that spent fuel can be stored in conventional water basin storage for the forty year period in question. As members of the

Committees are no doubt aware, significant progress is being made on several new dry storage techniques aided by the Reagan Administration's redirection of DOE's spent fuel programs toward the development of new technologies and away from efforts to actually provide storage capacity to utilities.

It is apparent in reviewing these developments that interim spent fuel storage technologies are adequate to store and safeguard spent fuel in a readily retrievable manner until a permanent repository is available. There is no need to develop and construct an entire new set of facilities sandwiched between interim storage and disposal.

Two and a half years ago when I testified before this Committee on S. 685 I devoted a considerable part of my testimony to the issue of whether or not the Federal Government should provide interim Away-From-Reactor (AFR) spent fuel storage to utility companies. Since then, several important developments have occurred.

Utilities have continued to increase their ability to store spent fuel on site through re-racking and have reduced their need for AFR storage further through longer fueling periods and deferral and cancellation of plants. The most recent DOE report on DOE spent fuel storage requirements (DOE/SR-0007, "Spent Fuel Storage Requirements" March 1981) stated,

> "In comparing the three storage requirements cases with previous reports decreases in all three cases are seen. These decreases have resulted primarily from utilities recognizing the need to solve their own storage problems whenever possible. This is evidenced by the degree of planned storage capacity increases, transhipments, onsite transfers and other actions discussed in this report."

In fact, anticipated need for AFR storage has declined steadily since 1975 when ERDA first began annual reports, its ERDA-25 series, on spent fuel management needs after it became apparent that reprocessing was no longer a viable spent fuel management technology. The ERDA-25 reports showed that with the loss of the NFS reprocessing complex at West Valley, NY and the termination of G.E.'s Morris, IL project a shortfall of spent fuel storage was inevitable.

A second major development has been the decision by TVA in January, 1980 to construct new on-site storage capacity at its plants rather than construct an AFR. The TVA has been instrumental in opening the door to a number of innovative spent fuel storage technologies which offer the promise if safer, less expensive storage than water basin AFR.

Thirdly, the Reagan Administration, as noted earlier, has moved to curtail the Carter Administration's open-ended commitment to AFR storage which was to have been provided through federal acquisition of existing private facilities at Barnwell, SC and Morris, IL. Certainly, the suggestion in S. 1662 that only a limited amount of federal AFR storage should be available is a step in the right direction compared to the Carter proposal, but a step backwards from the policy adopted earlier this year to give the private sector full responsibility for this activity.

We continue to support the position that the private sector should be solely responsible for spent fuel storage whether it is at reactors or away from reactors. In all of the debate over AFR's there has never been any evidence that the Federal Government, through DOE, would be able to complete licensing or environmental reviews of new or existing AFR storage facilities any faster than the private sector even though the it is the immediacy of the need for AFR has been the major argument for prompted federal involvement. On the other hand, the threat of federal involvement including the takeover of existing private facilities has lead to increased national and local opposition to AFR storage and will continue to do so.

Another stimulus for national and local opposition to a federal AFR program will be the dramatic increase in transportation of nuclear spent-fuel that will result. A forthcoming study by the National Academy of Sciences utilizes U.S. Deparment of Energy (Sandia Labs) data to estimate that, with 150 nuclear reactors coming into operation, a full national AFR waste system would mean a steadily rising number of controversial spent fuel shipments reaching 1500 truckloads per year by the year 1989 and nearly 11,000 truckloads per year by the 2004. (The average over the past 20 years has been 300 per year.)

The NAS study points out that even if there is a successful attempt to overcome the difficulties in using rail transport for spent fuel, the logistics of railyard switching would mean that "for all practical purposes railroad marshalling yards would become de-facto short-term AFR's", with "hundreds or even thousands of casks...at any given time 'stored' in these yards." Whether a single AFR location or three regional AFR sites are chose, the "transportation funnel" risks and socio-economic impacts will burden dozens of states, with the easily predicted results of greater demands for state and local regulation, emergency response and enforcement capabilities, and institutional contention over the waste system as a whole.

At any one time 120 spent fuel truck casks will be full and moving simultaneously; by the year 2004 these shipments will be arriving at an AFR at a rate of one per hour every day all year round.

Concern over a federal role in storage of commercial spent fuel has been also heightened by recent announcements from DOE that it is considering "mining" spent commercial fuel for plutonium for the weapons program. If such a policy is formalized, it would create a wide range of domestic and international problems. For example, converting commercial nuclear reactors into "bomb factories" the barrier built up by more than 20 years of federal policy separating peaceful uses of the atom from military uses will crumble. The proliferation and foreign export implications should not be underestimated in light of the growing number of developing nations on the threshold of nuclear weapons option. Combining commercial and defense wastes into a single waste stream would of course obviate the need for either of the bills before the Committees and would create an entire new series of administrative and licensing entanglements. Moreover, such a policy would centralize interim and permanent waste disposal in locations adjacent to the Savannah River Plant and possibly Hanford. The Savannah River Plant location has been seriously questioned as a suitable repository site.

This concludes my prepared statement and as suggested in the Committees' letter of invitation I will be pleased to submit a more detailed section-by-section analysis for the record.

Thank you.

Senator SIMPSON. Thank you. There is another rollcall vote. I do apologize. I would rather recess and take your testimony and I will be back in about 10 minutes. I do apologize for this.

[Whereupon, a recess was taken.]

Senator SIMPSON. We will hear from Eric Van Loon, executive director, Union of Concerned Scientists.

STATEMENT OF ERIC E. VAN LOON, EXECUTIVE DIRECTOR, UNION OF CONCERNED SCIENTISTS

Mr. VAN LOON. We appreciate this opportunity to present the views of the Union of Concerned Scientists concerning S. 1662.

The Union of Concerned Scientists is an independent nonprofit organization based in Boston, a group of scientists, engineers and other professionals who are supported by over 100,000 citizens nationwide in our work on nuclear powerplant safety.

A little over a year ago we published this book about radioactive wastes by Ballinger Publishing Co. It sets out both the history of the program and suggestions for future directions.

We join in feeling this issue is one of the most important ones facing the country and the Congress. I wish to commend the committee for the foresight to take the lead in putting the legislation before the Congress.

We believe the Federal waste policy legislation is the most effective way to establish clear national priorities in this area and we think equally important that the legislation can be the best way to guarantee the rights of States and local governments, citizen groups and others to participate fully in the process of selecting a repository site and developing that.

While we commend the chairman and committee for putting together and moving forward with this piece of legislation, we feel it sets a useful agenda for discussion but we do differ on a number of specific provisions which in our view will not achieve the goals which the committee has set out to achieve and a number of which we share.

In our view the two twin goals of a national waste policy is on the one hand taking positive concrete specific technical steps toward actually resolving the problem of radioactive waste disposal and second as the chairman pointed out, restoring public confidence in the overall process and in the public's perception of government's ability to protect the public health and safety.

We believe the public will tolerate the considerable amount of scientific uncertainty that is inherent in this whole process, only if the public believes the decisionmaking process itself will handle directly and honestly the many scientific, technical, and environmental issues that will inevitably arise during this long process.

For that reason we have great concern about the kinds of provisions in the act, provisions which strip the National Environmental Policy Act reviews of their significant meaning and second provisions that short circuit the NRC's role as our Government agency with the greatest amount of expertise in this area, limits some of their activities in the licensing of the repositories.

Third, and perhaps most importantly the number of provisions which have the effect of severely limiting or eroding or eliminating altogether in some respects public participation in key aspects of the process.

We have often heard the remarks that the problem is not technical, it is political. While we differ in some fundamental respect, we feel there are technical questions yet to be answered.

We believe, for those who believe the problem is fundamentally political, that this bill will have the unfortunate result of making things worse. It is our belief the licensing and the NEPA processes are the key to reestablishing the program's credibility in the eyes of the public and without these we believe the public is likely to conclude DOE's efforts and the industry's efforts simply cannot withstand full and fair public scrutiny.

We believe the program would lose even more credibility in the public and they would not accept the results no matter how many experts testify or say in private they have looked at the problem and there is no problem.

In short we think the main thrust of a number of the provisions are to move in the opposite direction.

I would like to elaborate several of the key procedural problems we see in the bill but highlight three problems with the overall direction of the bill.

We agree that responsibility for interim storage of spent fuel should remain with the private enterprise sector of the economy which produced the fuel. It should remain the responsibility of the utilities. We are in agreement on that with the House of Representatives in their bill passed last year, with the State planning council and with the current administration.

We believe the time frames in the bill are incompatible with putting safety first and also with moving toward what we perceive to be the most promising form of long-term repositories. Because the time frames in the bill are so short with site selection taking place in essentially 9 months from today, we believe it is inevitable these very short deadlines will force the adoption of those sites which are today the most far along in exploration and examination.

Because we believe there is a reasonable basis to conclude that granite is probably equally desirable and equally attractive as a long-term repository medium, but because we are not as far along at all in examining possible granite sites, we believe the short deadline will have the effect of precluding a granite site from being considered as one of the lead and first sites to be adopted.

I would like to turn to several of the forms of elimination of institutional safeguards which we believe are serious problems contained in the bill.

We believe in a number of ways the bill eliminates some of the safeguards existing under current law that go back in some instances under the Atomic Energy Act for more than two decades and in some instances the National Environmental Policy Act for more than a single decade and this bill is something of a back doorway of repealing certain sections of those.

One example is the interim licensing arrangement for onsite storage contained in section 311 of the bill. We believe the committee perhaps has not considered fully the real need for a measure of this sort which would reverse 20 years of Atomic Energy Act procedures.

No plant has ever been denied a license amendment for additional spent fuel storage onsite. Nor has any plant ever been shut down because of limited amounts of spent fuel storage.

The Robinson plant cited by Mr. Smith as one of the plants that would come up against a deadline in 1986, we believe it is relevant and the committee would be interested in knowing that is one of the eight plants cited less than 10 days ago by the NRC as having serious problems with temperature pressure vessel embrittlement problems.

Of the eight plants cited by the NRC 10 days ago as facing serious problems because of the high temperatures, it ranks the highest as the single most endangered plant in the country on that particular criteria.

It was also among the 13 plants that were cited by the NRC approximately a month ago as having the most serious problems with the steam generator replacement.

There is at least a higher probability than in the average plant. It is only one of three plants in the whole United States cited for both of these two serious problems.

There could be long shutdowns to replace and repair some of these and the likelihood of that one coming up against difficulties in 1986 is not as close as Mr. Smith suggested.

Another plant which we are involved with, the Maine Yankee plant, was cited by Mr. Berick, is one in which they anticipate they may have problems by 1986 but they are presently involved in a rulemaking proceeding before the NRC, a license amendment, which if carried through and their request is granted, they will be in a position to store at that site with their new procedures all the fuel that would be generated at the Maine Yankee site in the full 30 to 40 years operating life of the plant. Even if that proceeding takes the longest amount of any proceeding, an additional 2 years, that gets us to 1983 and they have 3 additional years from 1983 to 1986 to implement those if the NRC sees fit to go ahead with it.

We feel as another example there is serious problems with the hybrid procedure which has been set forward. We are not writing on a completely blank slate with regard to that. There has been experience previously with the NRC trying this in something called the table S-3 rule proceeding on uranium fuel cycle imports.

The upshot of that was a long and drawn-out embittered amount of procedural rangling with there not being any clear conclusion either that overall time was saved or the record produced was in any way superior and there is substantial agreement that it was not as solid as the record produced in normal proceedings.

The specific example included in the bill to put forward the hybrid proceeding includes such things as having the time of the licensing board spent on deciding whether an expert witness is credible and competent without ever hearing from the witness. Similarly it forces intervenors and limits public participation in their formulation of their concerns, forcing them to reduce to writing without the benefit of the normal discovery procedures that are inherent in any form of litigation an opportunity to get information from the community or utility.

Pages 5 to 7 of my statement outline eight of those. I will not elaborate further on those.

Senator SIMPSON. I did not want to be rude but you have gone well beyond the time suggested and I appreciate your condensing. We do have Mr. Wiggin to hear and we will open it up for questions.

[The prepared statement of Mr. Van Loon follows:]

Union of
CONCERNED
SCIENTISTS

UNITED STATES SENATE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

and

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

SUBCOMMITTEE ON NUCLEAR REGULATION

TESTIMONY OF ERIC E. VAN LOON

EXECUTIVE DIRECTOR

UNION OF CONCERNED SCIENTISTS

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on S. 1662 and S. 637

October 6, 1981

Thank you for the opportunity to present the views of the Union of Concerned Scientists regarding S. 1662 and S. 637. My name is Eric Van Loon, and I am Executive Director of the Union of Concerned Scientists. UCS is an independent, nonprofit group of scientists, engineers and other professionals, supported financially by over 100,000 citizen sponsors nationwide. We have conducted research into nuclear power safety questions for more than a decade, and in 1980 published a book-length study of the technical and policy issues surrounding nuclear waste (R. D. Lipschutz, Radioactive Waste: Politics, Technology, and Risk, Ballinger Publishing Co., Cambridge, 1980). We believe that the safe, permanent disposal of radioactive waste is one of the vital issues now facing the nuclear power industry and society at large, and are thus very pleased to see your committees giving this legislation the high priority that is necessary.

We hope that this Congress will enact a national nuclear waste policy bill. The consideration of legislation as comprehensive as S. 1662 and S. 637 will focus public debate on the scope and terms of the national policy that sets the course of federal activity for the next two decades. Federal waste policy legislation is the most effective way to establish a set of reasonable, attainable program milestones. Legislation can best guarantee the rights of states and local governments, as well as ordinary citizens, to participate fully

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in the repository site selection and development process. Without clear statutory mandates, the crucial decisions on program direction will be made in the relatively closed confines of the authorization and appropriations processes.

Therefore, we commend the chairmen of both full Committees and this Subcommittee for taking the lead in drafting and introducing the legislation (S. 1662) that is being considered today. Although this legislation provides a useful framework for discussion, unfortunately many of its provisions do not, in our opinion, serve the important public purposes discussed in the preceding paragraph. In particular, two of its primary elements--the emphasis on short- and long-term storage of spent fuel, and the curtailment of licensing and environmental reviews--move in precisely the wrong direction. Both of these policies carry a high risk of harming rather than assisting the development of a successful federal program for the safe, permanent disposal of high-level nuclear waste. As a result, we urge your committees to reject these bills and develop alternative legislation that will achieve the twin goals of moving directly toward a technical solution of the radioactive waste problem and restoring public confidence in the government's ability to protect public health and safety.

The public will tolerate the large measure of scientific uncertainty that is inherent in any nuclear waste disposal program only if it perceives that the decision-making process will handle directly and honestly all of the major scientific, technical, and environmental issues that can be fairly raised. Provisions that strip the National Environmental Policy Act (NEPA) reviews of their value and short-circuit the NRC's licensing procedures will erode the public's confidence in the federal decision-making process and the institutions that administer it.

We have often heard comments, from the nuclear industry's advocates and others, that the obstacles to a successful waste disposal program are entirely or largely "political". We do not fully agree with that conclusion, because we see many unresolved technical issues standing in the way of secure, permanent disposal. But, for those who do believe that the problem is mainly political, we must point out that this bill can only make things worse. By eviscerating many of the institutional safeguards that skeptical citizens, states, tribes and local governments count on to insure the integrity of any federal waste disposal program, this legislation in turn weakens, rather than strengthens, the program itself. The licensing and NEPA processes are the key to establishing the program's credibility in the eyes of the public. If those mechanisms are swept aside the public is likely to conclude that DOE's and the nuclear industry's proposals cannot withstand full and fair scrutiny. The program will then quickly lose its credibility and the public will not accept its results. This will happen no matter how many government and industry authorities proclaim their confidence in the program.

The licensing and NEPA shortcuts will doubtless be justified as timesavers. We believe that any savings that are optimistically predicted will turn out to be illusory. When states, tribes, and individuals believe that their rights are being violated, they will use every legal and political means at their disposal to resist the perceived encroachments. Provisions that are intended to expedite proceedings will be used to delay them; every issue and phrase will likely be contested in a legal trench warfare that benefits no one. An approach that is less mistrustful of the public (and the NRC) will, in our view, prove to be the most efficient as well as the fairest.

With these general comments on record, let me highlight in the rest of my statement a few important points that fall into two categories: program direction and institutional safeguards. As your letter requested, we will submit a section-by-section analysis containing our detailed comments on the provisions of this legislation.

PROGRAM DIRECTION

We believe that the time, effort and resources that DOE or its successor agency, the NRC, the nuclear industry, the scientific community, and the public at large will expend on monitoring and implementing the away-from-reactor (AFR) and long-term monitored retrievable storage (MRS) programs can only diminish the time, effort, and resources available for what we presume is the ultimate goal of the federal waste program and this legislation: the siting, development, licensing and construction of a safe, permanent deep geologic repository. The public neither deserves nor wants temporary "solutions" to the nuclear waste dilemma, and these storage programs by their very nature can provide nothing more.

We agree with the position taken by the Administration, the State Planning Council, and the House of Representatives (in the legislation, HR 8378, it passed last year) that interim storage of spent fuel should remain the responsibility of the utilities, rather than being assumed by the federal government. As Bertram Wolfe, Chairman of the Atomic Industrial Forum's Committee on Fuel Cycle Policy, told a House Subcommittee earlier this year: "Since all of the spent fuel to be generated in this century could be stored in water pools having a surface area less than the reflecting pools at the Capitol Mall, clearly we face no near-term emergencies which are not of our own making." The industry's interim storage needs can be solved through use of existing on-site capacity, augmented where necessary by one or more of the promising dry storage technologies that are being developed. We would reiterate the advice of E. William Colglazier Jr., who told the same House committee: "The most important factor in utilities being able to meet their interim storage responsibility is maintenance of a constant policy by the federal government. The utilities would then have the certainty, incentive, and leverage to provide for their own capacity."

The compressed timetables for the achievement of certain program milestones that are contained in both bills, and particularly those for the construction and licensing of a permanent repository in Title IV of S. 1662, raise serious questions whether these schedules realistically reflect the time periods that will be necessary for DOE, NRC and other agencies to adequately carry out their responsibilities. The time frames in both bills are incompatible with putting safety first. They also substantially increase the likelihood that DOE will make poor decisions, thereby demonstrating not that a solution to the waste dilemma is at hand, but that it is as far away as ever. While we are aware that Congress often mandates such timetables as a way to force action by seemingly slow-moving agencies, we hope that is not the case here. The history of the AEC/ERDA/DOE waste programs is replete with surprises and mistakes. There is no reasonable basis to conclude that the immediate future will be very different. We hope that Congress does not legislate in such a way as to force DOE to carry its mistakes to completion, rather than allowing it the time to step back, reflect, and correct its course if necessary.

In addition, we are apprehensive that the tight schedules built into certain parts of this legislation will, in combination with some of the procedural shortcuts, effectively preclude informed public participation in crucial program decisions. For example, DOE's site selection guidelines must, under section 403(a), be issued by January 1, 1982. While we assume that this date will be adjusted, the few months set aside for this crucial element of the repository development program clearly do not contemplate nor permit outside technical experts to intelligently review this document.

Under section 403(b), the first two sites must be selected for characterization by June 1, 1982, and a third site by January 1, 1983. No NEPA review will be conducted before the sites to be characterized are selected, although the site selection is probably the single most critical decision for the entire geologic repository program. The timetables from this point on virtually dictate that one of the sites selected for characterization will be the final repository site. Moreover, members of the public should be forgiven if they conclude that the January and June, 1982 deadlines leave DOE only enough time to ratify pre-selected sites--a perception that is not consistent with the confidence in the federal program that its supporters wish to instill. This short time line precludes, as one prominent example, the selection of a granite site for the initial round of characterizations. Because many scientists believe that granite holds more potential as a long-term storage medium than salt, it deserves at least the same level of investigation as salt or volcanic rock during the decisive early years of the program.

Similarly, the site for the first (and perhaps only) long-term storage facility must be selected within one year after either bill is enacted. Since, as provided in section 501 of S. 1662, the long-term storage facility is not intended to be an alternative to the permanent repository, and since as provided in section 502(c) this facility must be integrated with the repository, we do not see how the site for this facility can be selected before the site for the repository. We assume that the drafters intended, by use of the term "integrated", that the storage facility be located adjacent to or close by the permanent repository, because otherwise any long-term storage facility would be a de facto alternative to the permanent repository.

We have many questions about the justification for a long-term monitored, retrievable storage facility. If it is not a glorified and expensive holding tank for the permanent repository, then it would function as an equally expensive AFR under another name. Long-term retrievable storage presents two fundamental dangers: first, many policymakers may come to view the MRS as a permanent repository, thus diverting the public and industry pressure for a genuine waste disposal solution; second, the MRS can perpetuate false hopes among those who believe that reprocessing of spent fuel will be economically or politically feasible. Since the second is a fantasy and the first is a trap, both these dangers should be avoided.

INSTITUTIONAL SAFEGUARDS

The second basic flaw in S. 1662, in our opinion, is the manner in which it waters down or eliminates a number of the institutional and procedural safeguards that exist under current law. Several of the provisions of Titles III, IV and V amount to backdoor amendments of the Atomic Energy Act or NEPA. If the intention of the drafters was to forge a consensus on long-sought waste policy legislation during this Congress, we do not understand why these extraneous but controversial changes were included.

As far as we know, no case has been made that any of these provisions is necessary. For example, one of the sharpest departures from current law is the interim licensing provision (section 312 of S. 1662) for expansion of on-site storage. This provision would allow NRC to issue a license for expansion of on-site spent fuel storage before the hearing on that license is held. To date, no plant has ever been denied a license amendment for spent fuel pool expansion. Nor has any plant been shut down, or come anywhere close to shutdown, because of lack of spent fuel storage capacity.

This is not an extraordinary and temporary situation where a sudden emergency may require an expedited proceeding. A utility knows years in advance when its spent fuel capacity will run out. When intervenors like the Attorney General of the State of Maine are raising serious safety issues with respect to the proposed rod compaction at Maine Yankee, the public interest demands a full hearing before alterations that are, as a practical matter, irreversible are made.

We can only view this interim license provision as an attempt to broaden the precedent contained in the temporary emergency provisions of the NRC authorization bills now under consideration that adjudicatory hearings are not necessary in nuclear licensing. This precedent reverses more than 20 years of AEC and NRC interpretation of the Atomic Energy Act and violates fundamental principles of due process. An applicant is not presumptively entitled to a license or license amendment, even with the NRC staff's approval.

The interim licensing section is merely one of a number of objectionable features of S. 1662:

—section 313 attempts to establish a hybrid procedure for granting license amendments for at-reactor spent fuel storage (presumably after an interim license has already been granted). This section would require an intervenor seeking a hearing to first "submit in written form...all the facts and arguments upon which that party proposes to rely that are known at such time to that party." That requirement takes effect before discovery commences (assuming discovery is allowed at all, which appears to be in NRC's discretion); thus it is either meaningless, because the party would be constantly supplementing his facts as discovery proceeds, or an attempt to restrict the issues a party can raise.

The hearing board must then decide, after oral argument but apparently no presentation of sworn oral testimony, whether any "disputed question of fact" exists that requires resolution in an adjudicatory hearing. This provision introduces an additional step beyond the current "factual basis" requirement of 10 CFR 2.714(b), for a party to establish its right to an adjudicatory hearing. Section 313(b)(1)(A) requires the parties to brief and argue, and the board to decide, the following issues: 1) whether a genuine and substantial dispute of fact exists; 2) whether that dispute involves factual assumptions or methodology upon which expert opinion is based; 3) whether the dispute concerns the credibility and competence of an expert witness (before the witness has testified!); 4) whether that witness will be significantly relied upon by a party to the proceeding; 5)whether the factual dispute can only be resolved "with sufficient accuracy" by the introduction of reliable evidence in an adjudicatory hearing; 6) if so, what evidence. It is difficult to conceive how the board will be able to tell if the proposed evidence is reliable without hearing it, and we are intrigued that the board is compelled to examine the "credibility and competence" of a proposed expert witness without allowing any cross-examination to probe these characteristics. More fundamentally, we simply cannot believe that this unprecedented procedural jungle will save any time at all. On the contrary, it is clear to us that this procedure will significantly lengthen the process and frustrate all parties. The licensing board's valuable time will be wasted in procedural bickering which does nothing to answer the legitimate questions raised in these cases. (NRC once attempted to conduct a hybrid proceeding with some of these features--the rulemaking on Uranium Fuel Cycle Impacts (the "Table S-3" rule)--and the result was a clear failure; the proceeding took far longer than anticipated and resulted in a poor record for Commission action.)

If after all this legal quibbling the board rules that no adjudicatory hearing is warranted, then a decision with major safety impacts--the storage of spent fuel for decades at a reactor site--will receive no more thorough hearing than a local school closing. Witnesses will not be sworn, no cross-examination will be allowed, parties will not be able to rebut opposing arguments. A hearing of this sort can only give the public the impression that the applicant is unable to present a persuasive case that will stand up to questioning and cross-examination.

Similarly, section 313(c) attempts to restrict judicial review of such administrative determinations, but it does so in a way that may potentially backfire upon its proponents. By requiring the reviewing court to examine the "central issue(s) of the proceeding taken as a whole", this section may invite the court to delve much more deeply into the facts of the case than it currently does under the Administrative Procedures Act.

--Sections 302(b) and 305(a)(2) combine to vest virtually absolute discretion in the Secretary of Energy to decide whether a utility's spent fuel storage needs shall be met on-site or by means of an AFR, thereby shutting the NRC out of an issue with substantial safety implications. Section 302(b) mandates a very quick rulemaking by the Secretary to establish the criteria for determining whether a utility can provide adequate on-site spent fuel storage. Under section 305(a)(2), the NRC in licensing an AFR cannot consider the need for the facility, because that will have been determined pursuant to the criteria issued under section 302(b). The result is that the policy decision whether to aim for expanded on-site (wet or dry) storage will be made by the utility and DOE, with no review by the NRC and thus no formal public input beyond that minimally afforded in the 302(b) rulemaking.

--Under section 403(d) the sites to be selected for characterization are not subject to the customary NEPA review. While that review is allowed before the final site selection, it is the initial narrowing of the available universe of sites, much more than the final site selection, that will determine the character of the repository. Thus, absent this provision, the selection of sites for characterization would certainly not be considered a "preliminary decision-making activity" as defined by NEPA, especially since under section 405(f)(1) the NRC in licensing the final site may consider as alternative sites only those that were selected for characterization. The practical effect of this section is, therefore, to carve out a major exception from the provisions of NEPA.

--Although the test and evaluation facility mandated in section 407 will be designed to hold up to 300 "packages" of solidified high level waste and spent fuel (and we find no definition of a "package" anywhere in the legislation), it will not be licensed by the NRC. However, it will under section 407(e) be subject to the NRC's "concurrence". The net result of this provision is to retain NRC review while excluding the public from formal participation.

The test and evaluation facility is apparently intended as a temporary facility to develop packaging and materials handling technology, rather than a proto-repository. However, this section sets no date for the withdrawal of the emplaced waste, and does not prohibit the eventual conversion of the facility into a repository. In fact, section 407(b)(1) directs the Secretary to take action to "preserve the availability of the site for use for a repository". If the T&E facility is needed at all, and we are not convinced that the same activities could not as easily be conducted at the eventual repository site, then firmer provisions should be inserted to guarantee that in a decade or so the public is not presented with a *fait accompli* unlicensed repository.

--The retrievable, monitored storage facility mandated in Title V is also exempt from certain key NEPA requirements. Under section 504(a) the proposal to construct this facility--in which the key design decisions are made--is not considered a "major federal action", so that an environmental impact statement is not required, although a less complete environmental assessment on alternative technologies (but apparently not sites) is to be prepared. Since the site is to be selected within one year, with no EIS and no discernible public participation, and both the later licensing process and the eventual EIS cannot consider (pursuant to sections 504(c) and 504(b)) alternatives to the established design criteria, no forum will be available to raise questions concerning the suitability of the site. Because the MRS is to be "integrated" with the final repository, it is more than possible that the location of the MRS will *de facto* determine the site of the repository--all without meaningful public review of the siting questions.

--Finally, section 101(i) apparently is intended to terminate NRC's Waste Confidence Proceeding. After almost two years and an unprecedented effort by government, industry, state and local authorities, and citizens groups to assemble a comprehensive record, Congress proposes to stop the process just short of NRC's formal findings. Because the purpose of the proceeding, as its name indicates, was to establish whether a basis exists for confidence by government and the public that radioactive waste from powerplants will be safely disposed of, the premature termination of this proceeding by Congressional fiat will signal that government and industry are fearful of what the result may show.

Unfortunately, we do not have the time or space to do more than mention other important issues, such as the unwarranted exclusion of defense-program waste from the provisions of this legislation, or the need to strengthen further the generally adequate state and tribal role provisions of Title VII through a two-House state veto and funding for independent technical assistance.

In summary, we conclude that this legislation is aimed more at creating the illusion of progress toward safe, secure waste management, rather than establishing the conditions necessary for that progress.

Chairman McClure's introductory remarks described the goal of this legislation:

> "The retrievable monitored storage program would be the extra insurance under this bill to give complete confidence to the American people that nuclear wastes will be properly managed in the event of any forseeable circumstances in the future. That approach of total confidence underlies the entire bill and is intended to insure that there can no longer be any valid question raised with regard to that complete confidence."

We wish we could agree with these sentiments, but proclaiming that the government will solve the waste problem is not the same as designing a program that actually solves it. This, these bills fail to do.

Senator SIMPSON. Mr. Wiggin.

STATEMENT OF EDWIN A. WIGGIN, EXECUTIVE VICE PRESIDENT, ATOMIC INDUSTRIAL FORUM

Mr. WIGGIN. I am executive vice president of the Atomic Industrial Forum. I also serve as secretary of the Forum's Committee on Fuel Cycle Policy. I am appearing today in that capacity.

The bottom line of my statement is we support the objectives of S. 1662 as well as the programs and institutional mechanisms set forth therein to accomplish those objectives.

We concur in the thrust of the testimony presented by Mr. Smith.

In the brief time available, I would like to make the observations on a few of the provisions of S. 1662. We welcome the inclusion of a schedule in the proposed legislation. The specification of times certain for various steps to be taken by the Secretary of Energy and the Nuclear Regulatory Commission and the Environmental Protection Agency in bringing into being facilities for the away-from-reactor interim storage of spent fuel and the disposal of waste in geologic repositories is long overdue.

The precise date on which a repository becomes operable is not as important in our opinion as the dispelling of the public concern that these continuing delays have created.

Some of the public has understandably although mistakenly equated these delays to an inability to cope with unresolved technical problems. The milestone dates set forth in S. 1662 will not only mandate timely decisions and actions on the part of the responsible Government agencies but should also help allay these public concerns. More may be required to streamline procedures so as to assure that mandated dates are actually achieved.

The provisions set forth in S. 1662 for the Government's construction, acquisition, or lease of one or more away-from-reactor facilities for the interim storage of spent fuel seem entirely reasonable.

The bill points out and we concur that the lack of interim storage capability should not lead to an interruption in the continued orderly operation of nuclear powerplants.

By directing the Secretary of Energy to develop criteria against which a fair determination can be made as to whether Government provided AFR capacity should be made accessible to a particular owner/operator and by specifying that up to 2,800 metric tons of uranium capacity should be made available to those who qualify, this section of the bill coupled with industry's own initiatives to increase onsite storage should accommodate overall spent fuel storage needs out to the mid-1990's.

The nuclear utilities expect to pay the full reasonable cost of AFR services provided by the Government. I would expect the industry to be fully supportive of the provisions of section 303 of S. 1662 that call for DOE to set a fee that covers a proportion of the construction, operating, maintenance, and decommissioning costs of such facilities as well as the cost of transporting the spent fuel to the facilities.

We concur in the sequence development of EPA standards and NRC technical criteria for a geologic repository. Since NRC criteria should conform to EPA standards for offsite releases of radioactivity, we think it entirely appropriate that EPA should promulgate its standards 6 months in advance of NRC's promulgation of its technical criteria.

We note that S. 1662 specifies that NRC's technical criteria shall provide for the use of multiple barriers in the design of the repository. We concur but would hope that the effectiveness of such barriers in constraining the radioactive materials contained in the waste package from reaching the biosphere would be assessed in terms of the performance of the overall repository system rather than in terms of individual components.

Although there are those in industry who have questioned the value of the test and evaluation facility now being planned for by DOE and called for in the bill, we subscribe to the argument that it could demonstrate to the public an ability to handle waste and verify certain logistics mechanisms in advance of the date that a repository can be expected to be operable.

We believe Congress should carefully weigh the cost effectiveness of DOE's proposal. Congress should satisfy itself that proceeding with the TEF will not result in the diversion of funds that could otherwise be used to accelerate completion of a repository.

We concur in the provision of the bill that specifies that the TEF should be constructed and operated at a site approved by the President for site characterization and that TEF-oriented studies should be conducted in such a manner as to preserve the availability of the site for use as a repository.

This should permit TEF-oriented studies to be supportive of and not delay site characterization work.

The function of a retrievable monitored storage facility appears to mean different things to different people. There are those within DOE who apparently favor the construction and use of such a facility as a means of storing solidified waste if the startup of a geologic repository were to be delayed.

There are those in industry who look upon such a facility as a means of moving spent fuel offsite in the event that further onsite storage capacity or the capacity of an AFR were not available.

Presumably an MRS would be able to accommodate either or both of these needs.

The point I want to make is that any efforts undertaken by the Federal Government to establish an MRS should in no way compromise the availability of funds for or the schedule of a government-established AFR and a government-established geologic repository.

Mr. Chairman, that completes my statement.

[The prepared statement of Mr. Wiggin follows:]

STATEMENT OF EDWIN A. WIGGIN, EXECUTIVE VICE PRESIDENT, ATOMIC INDUSTRIAL FORUM

Mr. Chairman and Members of the Committee, my name is Edwin A. Wiggin. I am Executive Vice President of the Atomic Industrial Forum. I also serve as the Secretary of the Forum's Committee on Fuel Cycle Policy. I am appearing before you today in that capacity.

The Atomic Industrial Forum is an international trade association of over 600 member organizations involved in the development and use of atomic energy for peaceful purposes. Its Committee on Fuel Cycle Policy includes within its purview all aspects of the nuclear fuel cycle, including the management of both high-level and low-level radioactive wastes. The Policy Committee, as well as its Subcommittee on High-Level Waste, have been working with both the Department of Energy and the Nuclear Regulatory Commission in an effort to resolve some of the problems addressed in Senate Bill 1662.

I appreciate this opportunity to appear before you today.

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The bottom line of my statement is that we support the objectives of S.1662 as well as the programs and institutional mechanisms set forth therein to accomplish those objectives. I might also say that we concur in the thrust of the testimony that has been presented to you by Mr. Smith, a copy of which I had an opportunity to review prior to this hearing.

In the brief time that is available, I would like to make some observations on just a few of the provisions of S.1662. I should note that this bill appears to be more comprehensive in its scope and more responsive to the needs that exist in the waste management area than some of the other legislative initiatives that have come to our attention.

Schedule

We welcome the inclusion of a schedule in the proposed legislation. The specification of times certain for various steps to be taken by the Secretary of Energy, the Nuclear Regulatory Commission and the Environmental Protection Agency in bringing into being facilities for the away-from-reactor interim storage of spent fuel and the disposal of waste in geologic repositories is long overdue. Over the course of the past three decades, we have seen the projected date for an operating waste repository move from 1970 to a 1997-2006 time frame. Although we believe it possible to shorten this schedule, as do the drafters of S.1662, the precise date on which a repository becomes operable is not as important, in our opinion, as dispelling the public concern that these continuing delays have created. Some of the public has understandably, although mistakenly, equated these delays to an inability to cope with unresolved technical problems. The benchmark dates set forth in S.1662 will not only mandate timely decisions and actions on the part of the responsible government agencies but should also help allay these public concerns. However, more may be required to streamline procedures so as to assure that mandated dates are actually achieved.

AFR

The provisions set forth in S.1662 for the government's construction, acquisition or lease of one or more away-from-reactor facilities for the interim storage of spent fuel seem entirely reasonable. On the one hand, the bill recognizes that nuclear power owner/operators must assume the primary responsibility for providing interim storage. On the other, it also recognizes the inability of certain owner/operators to provide such capability. In most instances, the reason is directly attributable to changing government policy on reprocessing. The bill points out, and we concur, that the lack of interim storage capability should not lead to an interruption in the continued orderly operation of nuclear power plants.

By directing the Secretary of Energy to develop criteria against which a fair determination can be made as to whether government-provided AFR capacity should be made accessible to a particular owner/operator and by specifying that up to 2,800 metric tons of uranium capacity should be made available to those who qualify, this section on the bill, coupled with industry's own initiatives to increase on-site storage should accommodate overall spent fuel storage needs out to the mid-1990's.

A point that has previously been made to both the Administration and the Congress perhaps bears repeating here. The nuclear utilities expect to pay the full reasonable cost of AFR services provided by the government. Hence, I would expect the industry to be fully supportive of the provisions of Sec. 303 of S.1662 that call for DOE to set a fee that covers a proportion of the construction, operating, maintenance and decommissioning costs of such facilities as well as the cost of transporting the spent fuel to the facilities.

EPA & NRC Criteria

We concur in the sequence development of EPA standards and NRC technical criteria for a geologic repository. Since NRC criteria should conform to EPA standards for off-site releases of radioactivity, we think it entirely appropriate that EPA should promulgate its standards six months in advance of NRC's promulgation of its technical criteria. Up to this point in time, we have not been entirely successful in convincing the NRC staff of this logic.

We note that S.1662 specifies that NRC's technical criteria shall provide for the use of multiple barriers in the design of the repository. We concur, but would hope that the effectiveness of such barriers in constraining the radioactive materials contained in the waste package from reaching the biosphere would be assessed in terms of the performance of the overall repository system rather than in terms of individual components. The system, of course, includes the waste form, the container, the overpack, the backfill, the sleeve, the host rock formation and the site characteristics. It is this multi-barrier system, taken as a whole, that should be expected to meet such criteria as may be established.

TEF

Although there are those in industry who have questioned the value of the Test and Evaluation Facility now being planned for by DOE and called for in S.1662, we subscribe to the argument that it could demonstrate to the public an ability to handle waste and verify certain logistics mechanisms in advance of the date that a repository can be expected to be operable. However, we believe Congress should carefully weigh the cost effectiveness of DOE's proposal. Further, Congress should satisfy itself that proceeding with the TEF will not result in the diversion of funds that could otherwise be used to accelerate completion of a repository. We concur in that provision of the bill that specifies that the TEF should be constructed and operated at a site approved by the President for site characterization and that TEF oriented studies should be conducted in such a manner as to preserve the availability of the site for use as a repository. This should permit TEF oriented studies to be supportive of and not delay site characterization work.

MRS

We note that S.1662 specifies that "the Secretary [of Energy] shall transmit to the Congress a proposal for a system consisting of at least one facility for the long-term, retrievable, monitored storage of solidified high-level radioactive waste and spent fuel resulting from civilian nuclear activities." The function of a retrievable, monitored storage facility appears to mean different things to different people. There are those within DOE who apparently favor the construction and use of such a facility as a means of storing solidified waste if the startup of a geologic repository were to be delayed. There are those in industry who look upon such a facility as a means of moving spent fuel off site in the event that further on-site storage capacity or the capacity of an AFR were not available. Presumably a MRS would be able to accommodate either or both of these needs. The point I want to make is that any efforts undertaken by the federal government to establish a MRS should in no way compromise the availability of funds for, or the schedule of, a government-established AFR and a government-established geologic repository.

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Mr. Chairman this concludes my statement. I would be pleased to answer any questions you or other Members of the Committee may have.

Senator SIMPSON. Thank you.

Mr. Van Loon, you seem critical of the timetable in S. 1662 for the development of this unique and first full-scale operation of a repository for high-level waste and spent fuel. You also advocate a broader consideration of sites for the first repository including a granite site. You assert that NEPA's environmental impact statement requirements should apply to all site identification and selection for characterization steps.

Assuming all the steps you advocate are followed, what might we expect and when might we expect the repository to be finally in operation with those conditions?

Mr. VAN LOON. I think that is not a question I can answer with any confidence. I think there is at least a strong argument that prudent policy suggests that may get us to an actual operable repository faster than the procedures suggested here. If we only have one or two main sites and we go forward examining those and then we have problems of the kind identified this morning, say there is an aquifer down there under the Hanford Reservation, say there are those problems suggested by officials this morning, if we are then left having pursued only two and not having looked at alternatives and have at that point to go back to essentially to square one or much earlier stages, we are further behind than we would be otherwise.

Senator SIMPSON. You also oppose the development of a long-term monitored retrievable storage facility and you oppose any Federal away-from-reactor spent fuel storage capacity.

In your view how much spent fuel will have been generated by the date you proposed for the operation of the first geologic repository and what would you propose be done with the spent fuel in the interim period?

Mr. VAN LOON. It appears to us that there is the capacity at each one of the reactor sites using the present pools and/or the dry cask storage technologies that are being developed and used in Europe and explored by TVA and are being discussed now between DOE and TVA and other places, that these could very possibly work well to retain at each site that amount of spent fuel which is generated at the site.

The proposal at Maine Yankee is by the utility and they have asserted and represented to the NRC and there appears to be some agreement it is workable and safe and their view is at that one site, without adding any additional pool or any additional dry cask storage, they can safely store all the fuel that would be generated in the 30- to 40-year reactor life at that site.

Senator SIMPSON. Let me ask you another question.

Mr. VAN LOON. I think there are serious questions to be looked at in that. As was suggested earlier today, the NRC has not at all rejected this out of hand and is exploring this very seriously.

Senator SIMPSON. If I recall you and I were both on a panel together in Tulsa. I remember that and enjoyed that thoroughly.

I am a bit disappointed to see the opposition to the various things proposed knowing of your tremendous interest in this area. You are opposing many of the things in the legislation and that bothers me.

Let me ask you, you are opposing any Federal AFR capacity and you noted that. You oppose the provisions of the legislation that are intended to provide some certainty that onsite additional spent fuel storage can be provided in a timely manner.

What assurance can you produce that the operation of nuclear plants will not be disrupted due to inadequate spent fuel storage capacity if your position is adopted; do you have an opinion or feel that the inability to maintain the full core reserve capacities will result in a substantial economic penalty for the utilities and the taxpayers?

Mr. VAN LOON. I think it is understandable that a prudent utility executive would come before you and say we do not have an assurance that we can maintain all of our spent fuel at the site where it is generated and that is because the NRC has not as of today ruled in enough instances that the fuel can be retained at the site.

The record is they have never yet turned down a single request for additional spent fuel storage on the site. The record is they have disposed of these promptly. The record in the one instance where they had a proposal for them to accommodate all of the fuel that would be generated at that site is they are looking at it favorably and the staff is recommending going along with that.

There are these other alternatives to be explored. There is additional capacity available at the TVA sites which has not been explored and may be available. There is the technology of the dry cask storage which is being used and explored and it is the position of the administration and the TVA in the budget statements they have sent over that is similarly something which they seek to pursue.

We think there are significant disadvantages to going with a temporary kind of arrangement absent a clear compelling reason to have that. I think the committee has indicated today surprise at the great change in projections from the utilities as to the amount of spent storage fuel which they expect to have in 1990 and 2000. It is a dramatic change within 1 year.

We think as this gets looked at a little more closely and is assessed more fully as to what the real options are, onsite and with dry cask storage and in TVA, that it is not clear there is a need to have this other procedure especially in the manner proposed.

Senator SIMPSON. I believe the chairman may have questions. I will certainly recognize him for that purpose.

The CHAIRMAN [presiding]. Thank you, Senator Simpson.

Mr. Van Loon, forgive me for asking a question which perhaps I should know the answer to. Does your organization believe or oppose the licensing of nuclear powerplants upon the basis that they lack assured storage capacity?

Mr. VAN LOON. No, sir.

The CHAIRMAN. Do you believe those who do intervene and oppose licensing of powerplants on that basis are wrong?

Mr. VAN LOON. There are a variety of concerns raised by individual groups. Our focus is always in those instances where we are in opposition on the safety aspects of the operation of the plant.

The CHAIRMAN. If I understand what you have told us today, there is no reason for us to have any concern about the lack of assured capacity because NRC has always acted in a way and the decisions have been made in such a way that they have never run up against that problem and there has been a dramatic change in attitudes with respect to reracking that has in effect guaranteed sufficient capacity.

Is that a correct characterization of what you have said? If so, it seems to me to follow those who oppose licensing of plants on the basis of lack of assurances for capacity are in opposition to the position you have stated.

Mr. **Van Loon**. They may be. I am not sure they would have thought things through to that extent.

Mr. Chairman, we do not oppose and in fact we endorse and believe it is very important there be Federal legislation. We do not take the view there is no problem to be dealt with over the long haul.

The **Chairman**. I understand.

Mr. **Van Loon**. The issue is whether we go to interim storage mechanisms between now and the time we have a repository.

The **Chairman**. I guess our concern has been this decision of how to deal with it has been so much delayed and so long in coming that we are trying to force the schedule.

Mr. **Van Loon**. Absolutely.

The **Chairman**. The public instead of becoming concerned about the lack of procedural safeguards becomes concerned about the imposition of procedural roadblocks that makes it impossible to make decisions.

I do not know whether it was wise or foolish for the Congress to pass the Alaska pipeline bill but Congress eventually got to the point where they could not wait any longer. Public opinion does not seem to me to have been outraged by that decision although it certainly did not have universal appeal at the time it was passed nor universal advocation since.

It seems to me there is an equal danger that if we do not act, the public opinion will react in such a way as to trample the procedural safeguards which you and I want to see maintained.

If I read the public mood, it is that the public is getting tired of a government that cannot make decisions and as a matter of fact they are going to try to find a way to create it so the Government does make decisions that have to be made in the public interest.

I think the world is in a very dangerous condition today as a result of the events in Egypt. President Carter less than 2 years ago was talking about sending American troops to the Middle East to protect the flow of oil through the Straits of Hormuth. He was not just making idle talk.

Nuclear power is not a perfect form of energy nor is any other. Each one has some tradeoffs. The public is demanding we get on with the business of meeting society's needs.

This bill certainly is not perfect but what we are doing without this bill is not perfect either. I do not say that by way of you. I know you are concerned or you would not be here.

Mr. **Van Loon**. I agree with a great deal of what you have said. I think I would differ in part on the specificity of the deadline. I do agree and I think Mr. Wiggin's perception is accurate that one of the problems we have is if we have a deadline and it is not met, then it aggravates and increases the public's frustration and undermines the lack of confidence.

The CHAIRMAN. The lack of confidence is not in the nuclear power option but in the ability of the Government to deal with it.

Mr. VAN LOON. Yes.

The CHAIRMAN. That does not mean they say no more nuclear power but it may mean they say no more government.

Mr. VAN LOON. One of the difficulties with the deadlines is it is our judgment some of them simply cannot be met.

The CHAIRMAN. I am concerned about that. I have heard an awful lot of people tell us we cannot do what has to be done and yet sometimes we find a way of doing it.

Mr. WIGGIN. Mr. Chairman, I am not for endless procrastination either. We were going to have a repository operable in 1990.

The CHAIRMAN. The Office of Technology Assessment has been at it for 5 years and have spent $1 million to produce a study that we mandated in 1978 and they have not done it yet. They tell us we have to study this more. That is fine for engineers and scientists. That is the way they make their living. I have no objection to that.

Senator SIMPSON. He informed us it would be delivered in November.

The CHAIRMAN. Of which year?

We have been looking at OTA's budget with a rather skeptical eye as to whether or not they are worth the money we are spending because of their inability to come to conclusions.

Mr. VAN LOON. Mr. Chairman, I think all of us are sobered by the assassination in Egypt and are very concerned about our country's dependence on Middle East Oil.

One of the things that is perplexing to us is the difference between nuclear power on the one hand which produces electricity and oil which is used overwhelmingly in our country's economy for transportation, manufacturing, and other areas other than generation of electricity.

The CHAIRMAN. Energy is not without substitution possibilities. One of the reasons I have driven an electric automobile is to demonstrate we can get individual transportation out of the nuclear powerplants.

Mr. VAN LOON. One of the numbers that is continually overlooked is within the context of energy shortages and crises, the one area of our energy economy where we have no shortage and no crisis and where we have a surplus unparalleled in the history of our country is in our Nation's electric generating capacity. We can produce in the United States on any given day 36 percent more electricity than we have ever consumed on a given day. That is one of the reasons——

The CHAIRMAN. We are looking at the ways we can make that available rather than recognizing there are no ways to deal with the question of the availability of generating capacity in areas where it is not used or at times when it is not fully utilized.

We are seeking those answers but just to recite the fact there is a surplus does not mean the energy is available at the time and place it is wanted and needed in the form it is usable at a price the consumer can pay.

There is no shortage of energy in this country. There are some problems with respect to its availability, utilization, and price.

Senator Simpson, I appreciate your willingness to stay and conduct these hearings at a time that it was inconvenient and impossible for me because I was called away, not because of my lack of interest, and I am sure everybody knows that but because we have two or three other problems going on at the same time.

Senator **Simpson**. I thank you, Mr. Chairman. I do have other questions that I will submit to Mr. Berick and Mr. Wiggin in writing.

The **Chairman**. Certainly. Thank you, gentlemen. The hearing is adjourned.

[Whereupon, at 4:50 p.m. the hearing was adjourned.]

APPENDIXES

APPENDIX I

Reports Submitted for the Record by Edward L. Helminski

STATE PLANNING COUNCIL
ON
RADIOACTIVE WASTE MANAGEMENT

HONORABLE RICHARD W. RILEY
Governor of South Carolina
Chairman

HONORABLE PAUL R. HESS
Kansas Senate
Vice Chairman

1900 L STREET, NW
SUITE 605
WASHINGTON, DC 20036
(202) 785-2901

August 1, 1981

President Ronald Reagan
The White House
Washington, D.C. 20500

Dear Mr. President:

The State Planning Council on Radioactive Waste Management was established under Executive Order No. 12192 to provide advice and recommendations on ways of resolving specific institutional issues related to the management of radioactive wastes.

For the past year and a half, the members, which include elected officials from state and local government and Indian tribes have labored constructively and in a most responsible manner in developing the Council's policy recommendations. With this report, the Council fulfills its mandate and offers recommendations which draw on the traditions of our federal system of government and could create an environment in which waste management decisions can be carried out.

The Council's proposals reject the alternatives of either an arbitrary imposition of decisions by the Federal government or arbitrary actions by state, local, or tribal governments to block waste management activities. Instead, we call for a decision making process, invoking the principles of federalism, as the means to achieve the nation's radioactive waste management objectives.

Of primary importance is the need for Congress to enact legislation that establishes a national policy for the permanent disposal of all high-level and transuranic wastes. This legislation should specify an intergovernmental decision making process based on the principles of consultation and concurrence. Unless this national policy, and the institutional framework to achieve it, is enacted into law, we will not be able to regain public confidence in our nation's ability to safely manage and dispose of these wastes.

In addition to our recommendations on high-level waste, the Council is calling for actions to be taken now to carry out existing policies on low-level waste disposal, the transportation of radioactive wastes, and the management of spent nuclear fuel.

Clear national policies, consistently maintained and cooperatively implemented, are essential if our nation is to continue to enjoy the benefits of nuclear technology which both public and private organizations have brought to us.

The members of the Council have welcomed this opportunity to serve the American people. We believe that the Council has provided a forum through which public officials have built the very partnership which the Council has advocated. Continuing a formal dialogue among Federal, state, local, and tribal officials would further strengthen this working relationship and thereby facilitate the task of carrying out our national policies on radioactive waste.

Respectfully,

Richard W. Riley
Paul R. Hess

Richard W. Riley
Chairman

Paul R. Hess
Vice Chairman

Enclosure:

Report to the President by the
State Planning Council on
Radioactive Waste Management

EXECUTIVE SUMMARY

During the decade of the 1970's it became increasingly apparent that government was unable to resolve the institutional barriers which prevented sound waste management practices from being implemented. The State Planning Council on Radioactive Waste Management was established by the President in order to address this problem.

As a nation, we have learned that sound technical solutions to the problems of waste disposal cannot be carried out without public acceptance. The key to gaining the public's confidence is a process of decision making which is open and accessible to elected officials from all levels of government. The Council believes that such a process can be put in place through a renewal of the traditional principles of our federal system of government.

A Partnership for Waste Management

State, local, and tribal officials must become working partners with the Federal government in making the crucial decisions about how radioactive wastes will be handled, transported, and ultimately disposed. This partnership presupposes a willingness on the part of public officials to undertake cooperative efforts to resolve waste management problems which affect their overlapping jurisdictions. It rejects the alternatives of either an arbitrary imposition of decisions by the Federal government or arbitrary actions by state, local, or tribal governments to block waste management activities.

A workable and effective partnership must include, first the full sharing of information and plans regarding waste disposal activities among all levels of government and, second, the opportunity for state, local, and tribal governments to participate effectively in waste management decisions which affect their jurisdictions. Finally, although the partnership will vary, depending on the type of waste involved and the nature of each governmental entity's authority, the principle of partnership should apply to all aspects of radioactive waste management regardless of the source of the wastes.

We have arrived at the point where it is important to decide not only what is to be done, but also how we will do it. A process of decision making must be established that will allow the American people to have confidence in the results of that process. There will be remaining uncertainties no matter what the decisions are. Only confidence in the process which leads to those decisions will enable us, as a society, to carry out safe and practical solutions to the disposal of our radioactive wastes.

High-Level Wastes

As a country, we have developed national policies which enable us to gain the benefits of nuclear technology, but the activities which produce these benefits also produce inherently dangerous wastes. State, local, and tribal officials are now contending with a vast array of proposals and promises related to either having large amounts of high-level and transuranic wastes stored in their midst or the prospect of having large amounts of this waste buried in their midst. Industry, likewise, has been hampered in its ability to plan for the management of its own waste materials. The end result is that none of us is certain about our fate in this matter because of changing Federal approaches to the problem.

Confidence that we in government can resolve this difficult issue will not be gained by further promises that programs are in place and that high-level wastes will some day be safely disposed of. We need Congress to enact legislation that establishes the national policy and the intergovernmental framework for the permanent disposal of high-level and transuranic wastes.

The legislation should prescribe a technically conservative national repository program with target time schedules to ensure that key objectives are met. The emphasis of the legislation should be on permanent disposal rather than temporary or long term storage of these wastes. The national program for more than a quarter of a century has been, in effect, temporary storage. It has represented our national policy by default, and this policy must be changed.

The legislation should also specify a consultation and concurrence process for state and tribal participation in the national repository program. This process should include a conflict resolution mechanism to be used in case consensus is not achieved between the Federal government and a state or tribe on a proposed repository site. State and tribal governments must be held accountable for the participation of local officials in this process.

Adopting the principle of consultation and concurrence does not mean granting a veto. The Council does not support the right of any state or tribe to veto a decision to site a permanent repository. What we have proposed is a framework for intergovernmental relations that is a reaffirmation of the Federal principles of governance. A national repository program can be implemented if it guarantees the legitimate right of state and tribal governments to be involved in decisions of vast importance affecting the future of their citizens.

Finally, the program authorized by Congress should apply to all high-level and transuranic wastes regardless of their source. We will not gain public acceptance for a national repository program if the American people perceive that different programmatic and institutional procedures have been put in place for the disposal of wastes which, from the perspective of public health and safety, are essentially the same.

The President must ensure effective coordination among the various executive branch agencies responsible for carrying out the national repository program. State and tribal governments must begin to establish procedures which will enable them, and officials from their local jurisdictions, to participate in the national program. These actions can be taken prior to final Congressional action.

Low-Level Waste

The Congress, through the Low Level Radioactive Waste Policy Act of 1980, has established a national policy which makes states responsible for ensuring the safe disposal of low-level radioactive wastes. The act encourages states to carry out this responsiblity on a cooperative regional basis through the formation of interstate compacts.

In the seven months since this policy was established, considerable progress has been made throughout the country toward stabilizing low-level waste management; progress which would not have occurred in the absence of a clear statement of national policy. Several states have enacted legislation that will facilitate the creation of new disposal sites. An interstate compact has been created in the Northwest, and nine states in the Southeast are negotiating a compact for submission to their state legislatures in 1982. States in the Northeast, Midwest, and South Central regions are working toward similar arrangements.

The Federal government should continue to provide assistance to the states during the transition phase of implementing this new policy, and the Federal regulatory agencies should complete the regulatory framework to support this policy. Finally, the Congress should authorize the transfer of properly decommissioned low-level waste burial sites to the Federal government for extended care.

Spent Fuel

The President and the Congress should firmly maintain the current national policy of industry responsibility for the interim storage of spent nuclear fuel. A consistent commitment to this policy, coupled with Federal assistance in the development and demonstration of new storage technologies, will provide utilities with the incentive required to prepare for the additional storage capacity required for their spent fuel.

In addition, Federal and state authorities must take action, consistent with their obligation to protect public health and safety, to mitigate potential institutional obstacles to spent fuel storage proposals. The NRC should put forth regulations specifying a timely licensing process for existing and new storage techniques. States in cooperation with local and tribal officials, should take appropriate actions to facilitate implementation of safe and reasonable proposals for the storage of spent fuel within their boundaries. Our national policy should not permit one part of the country to avoid the burden of spent fuel management in the hope that the Federal government will transfer that burden elsewhere.

Transportation

A regulatory framework that applies to all radioactive waste shipments must balance both national uniformity and the states' traditional authority to regulate transportation within and through their boundaries for the protection of public health and safety. This requires that the Federal government work with state, local, and tribal officials in the development and enforcement of transportation regulations. It also implies that arbitrary actions by state, local, and tribal governments to block reasonable highway routing of radioactive waste could increase risks to public health and safety.

A uniform national routing system should be finalized with uniform standards for advance notification of certain shipments of radioactive materials and wastes for use by appropriate state, local, and tribal officials. States should be encouraged to take the lead, in partnership with local and tribal governments, for developing and implementing emergency response plans and procedures for transportation accidents involving radioactive materials and wastes.

Conclusion

In formulating its recommendations, the Council has been instrumental in building an active dialogue among state, local, and tribal officials, among Federal agencies and non-Federal officials, and with industry and public interest groups. As a result of this dialogue, a consensus has been achieved on the basic principles for national policies for radioactive waste management. The responsibility now rests with elected officials from all levels of government, working together, to establish and carry out these policies. A continuing formal dialogue among Federal, state, local, and tribal officials would strengthen this intergovernmental partnership and facilitate the task of implementing these policies.

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B. Procedures of the State Planning Council

C. Letter to the Chairman of the Nuclear Regulatory Commission on 10 CFR 60, Procedural

D. Low-Level Radioactive Waste Policy Act of 1980

E. Letter to the President on National Planning

F. Statement of Principles on Federal Interim Storage

I. INTRODUCTION

During the 1970's, the American public voiced increasing concern about the nation's ability to manage radioactive wastes. Responding to these and other concerns – such as the wise use of their land and other natural resources – state, local, and Indian tribal governments attempted to define for themselves a more active role in the decisions regarding how these wastes should be managed and how the waste management activities should be regulated.

In the process, states and tribes challenged the Federal government's preeminent role in the management of nuclear wastes. This challenge has complicated relations between the Federal government and state, local, and tribal entities. In some instances disagreements, coupled with the absence of intergovernmental cooperation, have hampered progress more than the technical problems. In several cases, the activities of the Federal government were brought to a complete halt because of the lack of intergovernmental agreement.

In 1978, the National Governors' Association recommended that the Congress and the President create a national advisory panel composed of officials from state and local governments, Indian tribes, and Federal agencies to help develop policies and procedures for resolving the intergovernmental impasse in radioactive waste management. The "Report to the President of the Interagency Review Group on Nuclear Waste Management" (1979) further underscored this need when it noted that:

> The resolution of institutional issues required to permit the orderly development and effective implementation of a radioactive waste management program is equally important as the resolution of outstanding technical issues and problems. (p. XV).

The report also endorsed the National Governors' Association's proposal for an advisory panel and called for the establishment of the State Planning Council on Radioactive Waste Management.

The Council was created by Executive Order 12192, which the President signed on February 12, 1980 (see Appendix A). The President directed the Council to recommend policies and procedures for building an intergovernmental dialogue and for promoting intergovernmental cooperation in the area of radioactive waste management.

The Council has developed policy recommendations on:

- A framework for intergovernmental partnership
- A consultation and concurrence process for high-level waste repositories
- A management system for low-level radioactive waste based on state responsibility
- A national plan for radioactive waste management
- Transportation of radioactive materials and waste
- The interim storage of spent fuel.

This Report presents the Council's analysis of the issues it addressed, the formal recommendations it adopted, and other actions it took to advise the President, the Secretary of Energy, members of Congress, and other public officials. It concludes by summarizing what actions Federal, state, local, and tribal governments should take to resolve institutional barriers to the safe management and disposal of radioactive wastes.

II. AN INTERGOVERNMENTAL PARTNERSHIP IN RADIOACTIVE WASTE MANAGEMENT

DISCUSSION

Past policies and procedures have played a significant role in creating the adversarial environment which is obstructing the effective management of radioactive wastes. To overcome this legacy and to create an environment in which practical solutions to the safe handling and disposal of radioactive wastes can be achieved, the Council has proposed a new set of policies and procedures based on the traditional strength of our Federal system of government.

A principal element in this proposed policies and procedures is a partnership among elected officials at all levels of government. This partnership rejects both the arbitrary imposition of Federal will and arbitrary actions by states, tribes, and local governments to block waste management proposals. Instead it calls for a cooperative decision making process as envisioned when our Federal system was established.

Two elements are essential to make the partnership workable. First, all levels of government must share information and plans related to waste disposal activities and programs. A useful vehicle for fostering this partnership can be a planning process which involves participation by decision makers from all levels of government. Second, there must be an opportunity for state, local, and tribal governments to participate with the Federal government in the decision making process early enough to have a voice in the outcome. While the partnership focuses on a working relationship between the Federal government and state and tribal governments, states and tribes must be held accountable for establishing procedures which will enable officials from their local jurisdictions to participate effectively in the decision making process.

The partnership should apply to all aspects of radioactive waste management, regardless of the sources of the wastes, although it will vary in practice depending on the type of waste involved and the authority each governmental entity exercises in a particular area.

RECOMMENDATION

The Federal/State/Tribal Partnership for Radioactive Waste Management

The State Planning Council endorses the following conceptual definition of the Federal/state/tribal partnership for radioactive waste management: A Federal/state/tribal partnership is crucial to the successful resolution of all radioactive waste disposal problems. The nature of the partnership will vary substantially by waste type and in accordance with the different responsibilities of the Federal, state, local, and tribal governments.

Any workable and effective Federal/state/tribal partnership must include: first, full sharing of information and plans among all levels of government; and second, opportunity for all state, local, and tribal governments to participate effectively in the decision making process. It is essential that states establish a process that ensures effective local governments' participation.

1. For siting and other activities involved in the development of a permanent repository for the disposal of transuranic and all high-level wastes, the Federal/state/tribal partnership should be the process of consultation and concurrence, which is defined as follows:

   a. Consultation involves sharing of information on planned activities and the right of states/tribes to review, comment, and make recommendations on such activities.

   b. Concurrence is an incremental process involving the growth of public confidence and the development of a technical consensus that the waste management program can be accomplished with acceptable risks to public health and safety and with acceptable socioeconomic costs.

2. For low-level waste disposal, the Federal/state/ tribal partnership involves state responsibility for implementing disposal plans, Congressional authorization for regional efforts, and provision of financial and technical support by Federal agencies for initial state and regional efforts.

3. For uranium mill tailing disposal, a form of the Federal/state/tribal partnership is defined in the Uranium Mill Tailings Radiation Control Act of 1978.

4. For the storage of spent nuclear fuel, Federal and state authorities should work cooperatively to resolve institutional obstacles which could prevent utilities from providing the necessary storage capacity.

5. For transportation of radioactive wastes, the Federal/state/tribal partnership involves Federal responsibility for establishing guidelines based on intergovernmental cooperation with states and tribes. For emergency response, the partnership involves state responsibility for implementing plans and procedures, and Federal financial and technical support for state activities.

6. For national planning, the Federal/state/tribal partnership involves Federal consultation with states/tribes at all stages in the development of a national plan.

III. HIGH-LEVEL WASTE

BACKGROUND

The Federal government has assumed primary responsibility for the storage and transportation of transuranic (TRU) and high-level radioactive waste (HLW) generated by Federal national security and research and development activities and for the permanent disposal of these wastes from both government and commercial activities. First, the Atomic Energy Commission (AEC), then the Energy Research and Development Administration (ERDA), and now the Department of Energy (DOE) have been charged with fulfilling these responsibilities. In addition, disposal of any commercial transuranic waste and disposal of both commercial and government high-level waste is under the regulatory jurisdiction of the Nuclear Regulatory Commission (NRC).

Elected officials of states in which large quantities of high-level and transuranic waste are stored – South Carolina, Washington and Idaho – have long expressed concern over the lack of progress in developing disposal capacity for these wastes. Officials in other states became concerned about the high-level and transuranic waste disposal problem accelerated its program for developing a high-level waste repository.

The expansion of the national repository program under the ERDA prompted several states to attempt to exercise some authority over Federal high-level and transuranic waste disposal activities within their borders. Some states asked that existing activities either be decelerated or terminated. Others enacted laws prohibiting such activities or establishing requirements that the Federal government had to fulfill in order to conduct them. Although the legality of these laws was subject to court challenge, the Federal government chose not to do so. Instead, it attempted to accommodate them wishes as much as possible and to persuade the states to sanction the actions Federal agencies wanted to take.

By the late 1970's, the absence of a clear role for state and local governments and a framework for nonfederal participation in national planning and policy formulation was seriously impeding the progress of the national repository program. To address this problem, the Interagency Review Group (IRG) proposed a cooperative relationship between the Federal and state, local, and tribal governments based on the concept of "consultation and concurrence." The President endorsed this recommendation in his February 1980 message to Congress on radioactive waste management.

The Executive Order establishing the State Planning Council charged it with defining a consultation and concurrence process and advising on all aspects of siting facilities for the storage and disposal of high-level and transuranic radioactive wastes. It also directed the Council to "advise on an appropriate role for state and local governments in the licensing process for nuclear waste repositories."

DISCUSSION

The Council recommends that Congress enact a national policy on high-level and transuranic radioactive waste which:

- Clearly states that the primary objective of the national repository program is the permanent disposal of high-level and transuranic wastes
- Defines the essential elements of the program
- Defines the consultation and concurrence process for state and tribal government participation in the program.

The Council believes legislation is needed to create a framework in which national policy objectives can be achieved. The following discussion highlights the Council's formal recommendations regarding the national repository program, the consultation and concurrence process, and state/tribal relations with the Nuclear Regulatory Commission. It concludes with the actions that have been taken to date to implement these recommendations.

National Repository Program

A technically conservative national repository program – that is, a program requiring the investigation of several sites in a variety of geologic media – is important to states and tribes to ensure that the site chosen for the first repository is selected only after potential alternatives have been carefully assessed. Efforts to expedite the program should be conducted in a manner that will protect public health and safety and promote public confidence.

Federal legislation should emphasize the permanent disposal of high-level wastes rather then temporary or long-term storage. If demonstration or test facilities are technically justified, the size, duration, and purpose of such facilities should be statutorily defined to ensure compatibility with the technical and institutional elements in the national repository program.

Policy issues related to the withdrawal and use of public and private lands must be resolved. Federal agencies should be authorized to provide assistance to states, tribes, and local communities for the socioeconomic impacts of waste repositories. The national repository program should include a mechanism for recovering the costs of repository development and operation from the generators of the waste. Responsibility for liability claims should rest with the Federal government through the Price-Anderson Act.

The Council recommends that there should be no exemption from the existing requirements of the Nuclear Regulatory Commission or the National Environmental Policy Act of 1970, and that Nuclear Regulatory Commission licensing responsibility be extended to include new facilities for the disposal of transuranic waste. Its rationale rests on the IRG's conclusion that, "Because of the presence in TRU waste of substantial quantities of transuranic radionuclides, issues related to long-term containment . . . are identical for TRU and high-level waste repositories." These regulatory requirements should support the technical conservatism of the national repository program and should continue to serve as vehicles for state and tribal participation in that program.

Consultation and Concurrence Process

The Council recommends the development of a consultation and concurrence process for state and tribal participation in decisions made by the Department of Energy and other agencies responsible for implementing the national repository program. Although the consultation and concurrence process should apply to all phases of the repository program, the specific provisions the Council recommends extend only through the site selection phase. The Council concluded that it would be premature to define procedures for decisions such as closure and decommissioning of permanent repositories which will be made many years hence.

Consultation involves the free and open exchange between Federal, state, and tribal governments of all information on which planning and programmatic decisions are based. It implies that states and tribal governments should have the capacity for independent technical evaluation of program results.

Concurrence is an incremental decision making process. It involves building consensus among the public and elected officials that the conclusions and implications reached by the program have been appropriately analyzed.

Although its definition of concurrence presupposes that consensus will be reached, the Council recognizes that there may be impasses between the Federal government and an individual state or tribe. The Council believes that neither an absolute state veto nor the arbitrary preemptive imposition of Federal will is the appropriate way in which to resolve an impasse. Instead, the Council proposes a formal conflict resolution mechanism to ensure that decisions concerning the siting of a repository can be reached.

In proposing a consultation and concurrence process with a conflict resolution mechanism, the Council distinguished between informal and formal procedures. Informal procedures involve discussions aimed at consensus among the parties, while formal procedures are to be used when consensus cannot be reached. The Council anticipates that informal procedures will be used throughout site development and operations; they will involve many mechanisms and levels of authority. Formal procedures will be infrequent, highly structured, and tied to specific decision points.

An informal process involves a hierarchy of negotiations, starting at the lowest levels of authority and moving up as necessary. At any point in the process, a third party can be invited to mediate and make recommendations. Persistent impasses between states or tribes and agency heads can be resolved by informally appealing to higher Federal authorities – including the White House, the Congressional delegation, or Congressional committee chairmen with jurisdiction.

Where conflicts between Federal agencies and states or tribes cannot be resolved informally, the Council believes there must be a formal process involving access to the President or the Congress. The opportunity to petition the President or the Congress should be available when major program decisions require a societal as well as a technical consensus.

In cases where Congressional action is necessary to resolve a state's or a tribe's objection to site qualification, the Council prefers a two-house override mechanism in Congress to a one-house support procedure. A two-house override would place the burden of proof on the DOE rather than on the state or the tribe to demonstrate to Congress why its objections should be overridden.

Specifying the formal and informal procedures for resolving conflicts assures state and tribal officials that their legitimate concerns will not be dismissed by regional Federal officials or their contractors as unworthy of investigation and resolution. Such procedures, while offering opportunities for appeal, would also lead to a final decision. In addition, they could facilitate politically difficult decisions for officials. Finally, the procedures underscore the fact that the national interest in developing a repository can be interrupted only for demonstrable causes.

To facilitate the implementation of the consultation and concurrence process, the Council recommends the development of an interagency program plan which identifies the responsibilities of the various Federal agencies involved in the repository program and sets the stage for improved coordination through memoranda of understanding, interagency committees, or other measures. The Council also recommends that states and tribes establish groups for reviewing Federal proposals, negotiating and implementing agreements on state and tribal participation, and organizing constituent units.

The Council anticipates that organizing state and tribal activities will occur in several stages. During the initial screening stage, each state and tribe should designate a spokesperson. If a state or tribe is identified for more advanced exploratory work, a policy task force could be established to advise the governor or tribal chairman on the project. If technical developments at a proposed site need to be monitored or reviewed, a technical review group may be necessary.

To ensure the success of the consultation and concurrence process, all parties must understand their rights and responsibilities at each stage. In addition, the partnership must protect all parties against arbitrary or capricious changes in policies or practices. To address these concerns, the Council recommends that written agreements be negotiated between the Federal government and the state or tribe. Most agreements will be negotiated between a state or tribe and the DOE. However, a state or tribe may want to negotiate a separate agreement with another Federal agency that has statutory responsibilities for repository activities within the state's or the tribe's jurisdiction.

In the Council's opinion, recognized bases for state or tribal objection should guide the working partnership and provide a basis for formal proceedings if they are needed. The Council has identified several bases as legitimate grounds for objection, although it recognizes that states and tribes may identify others as they gain experience with the repository development program.

States and tribes, other than the one in which the repository is to be located, may want to participate in the consultation and concurrence process if it appears they would be affected by geophysical, geohydrological, or geographic impacts from the proposed repository. A role for these affected states and tribes should be defined.

State and Tribal Relations with the Nuclear Regulatory Commission

Because it is an independent regulatory agency, the Nuclear Regulatory Commission cannot share its authority with states or tribes through the consultation and concurrence process the Council has proposed. The Commission can, however, encourage states and tribes to participate in its rulemaking efforts and licensing proceedings. The NRC asked the Council to comment on its proposed procedural rulemaking for high-level waste repositories (10 CFR 60, Procedural). After reviewing this proposed rule, the Council recommended that it be revised to provide clear guidance to states, tribes, and localities concerning their role in the licensing process. The Council also proposed that the NRC provide additional guidance in a formal policy statement on state, tribal, and local participation. In addition, the Council made several specific recommendations regarding the Commission's programmatic requirements for the DOE. If unlicensed demonstration facilities are developed, the Council believes the consultation process between the NRC and the DOE should be clarified.

CURRENT STATUS

During the past 18 months, there have been a number of actions related to the issues the Council addressed.

At the Council's request, the DOE wrote to all governors, state legislative leaders, and tribal chairmen describing the national repository program and their role in it. The DOE also sent letters to state and tribal officials in regions of the country where more detailed area studies are planned.

A number of states and tribes moved to organize formal review panels that will represent them in negotiations with the Federal government. The DOE has extended funding to several states to support these efforts.

Recently the DOE and the State of New Mexico formally adopted a written agreement concerning the Waste Isolation Pilot Project (WIPP) in that state. The DOE is discussing the development of written agreements with other states, and the Council has drafted a model agreement to facilitate these discussions.

In accordance with the requirements of the National Environmental Policy Act, the DOE recently completed the final Generic Environmental Impact Statement on the Management of Commercially Generated Radioactive Wastes. A formal record of decision has been published in the Federal Register, November 21, 1980 (45 FR 77124), declaring a strategy for waste disposal based upon the development of mined geologic repositories.

The Nuclear Regulatory Commission incorporated several of the Council's comments in the final procedural rule (10 CFR 60, Procedural) adopted on February 25, 1981. The rule requires the DOE to characterize at least three sites at repository depth in at least two different rock types, one of which must not be salt, before the department can submit its first license application for repository construction. The NRC has indicated that it will issue a policy statement addressing other Council recommendations related to state, tribal, and local participation in the decision making process.

During 1980 both the House and the Senate passed nuclear waste bills addressing the Federal high-level waste management program and procedures for state and tribal participation in it. Congress adjourned, before agreeing on a compromise bill. In 1981, committees in both the House and the Senate began drafting legislation and holding hearings in anticipation of action by the 97th Congress.

RECOMMENDATIONS ON THE NATIONAL REPOSITORY PROGRAM

Emphasis on Disposal or Storage for High-Level Waste

The State Planning Council, recognizing the necessity and utility of interim storage for the short term as an important component of the overall high-level waste management program, nonetheless believes the primary emphasis of the national program should be on the permanent disposal of high-level wastes, so that as soon as possible they are isolated from the biosphere where they pose no significant threat to public health and safety.

Waste Management Program

The State Planning Council recommends that the high-level waste management program should be a technically conservative, step-by-step process based on investigation and comparison of a number of sites.

National Environmental Policy Act Review for High-Level Waste Repositories

The State Planning Council recommends that there be a comprehensive National Environmental Policy Act review of the national program for the management of high-level wastes, spent fuel and transuranic wastes based on the National Plan for Nuclear Waste Management.

National Environmental Policy Act Review of High-Level Waste Program

The State Planning Council recommends that the National Environmental Policy Act be applied to all major actions related to Federal activities for the management of high-level waste, transuranic waste, and spent fuel, including, but not limited to:

1. All new permanent repositories for the disposal of high-level and transuranic wastes;

2. All permanent repositories for the disposal of spent fuel;

3. All demonstration facilities for the test disposal of high-level waste, transuranic waste, and spent fuel.

Nuclear Regulatory Commission Licensing

The State Planning Council endorses the concept of Nuclear Regulatory Commission licensing for all facilities for the permanent disposal of high-level wastes, and recommends that:

1. Congress authorize the Nuclear Regulatory Commission to license new facilities for the disposal of transuranic wastes above the Environmental Protection Agency standard; and
2. Congress authorize the Nuclear Regulatory Commission to license facilities for demonstration or test disposal which constitute permanent disposal of high-level waste, transuranic waste, or spent fuel; and
3. Facilities for the demonstration or test disposal of high-level waste, transuranic waste, or spent fuel which may be upgraded into full-size repositories should involve consultation with the Nuclear Regulatory Commission.

Test and Evaluation Facility for High-Level Waste Disposal

If it is determined that a test and evaluation facility is technically justified in support of the overall program for the development of a permanent repository, the Council recommends that:

1. The repository development program plan clearly and publicly maintain the site characterization efforts in those geologic media which are not selected for the construction of the test and evaluation facility;
2. A statutorily defined time schedule be established to ensure progress across the range of geologic media required by Nuclear Regulatory Commission rule 10 CFR 60, Procedural, and to avoid undue delay in the decision to site permanent repositories;
3. The characteristics of the test and evaluation facility with respect to size and duration of operation be defined in statute;
4. By statute, require that after a specified period of time the wastes emplaced in a test and evaluation facility be withdrawn unless the Nuclear Regulatory Commission has approved an application from the Department of Energy to license the facility as a permanent repository;
5. The Nuclear Regulatory Commission issue a policy statement to clarify the Commission's role with regard to the Department of Energy's development of an unlicensed test and evaluation facility; and
6. The principles of consultation and concurrence, which the Council has identified for the repository development program, should be fully applied to the decision to site a test and evaluation facility.

Maximum Use of Lands Being Considered for Repositories

The State Planning Council recommends that all beneficial uses of the surface land and waters of candidate sites that have no potential to compromise that site for repository purposes be continued as long as possible. Land withdrawal should be completed only after a favorable Nuclear Regulatory Commission decision on a construction authorization license. If a site is disqualified for repository use by the Department of Energy or the Nuclear Regulatory Commission, or found to be not available by statutory limitations, it should be released for other uses in a timely way after the determination of unsuitability.

Responsibility for Repository Costs

The State Planning Council recommends that the Federal government bear repository costs initially and recover appropriate costs for commercial waste disposal by fees charged to the generators of the waste. A perpetuity fund should be established to pay anticipated long term repository costs.

Liability

The State Planning Council believes that the Federal government should be responsible for liability for damages resulting from transportation, disposal, or other activities associated with high-level waste repositories and should make an early determination that the provisions of the Price-Anderson Act apply to all such activities.

Federal Responsibility for Socioeconomic Impacts

The State Planning Council recommends that, because the Federal government has the responsibility for developing repositories it should accept the responsibility for socioeconomic impacts resulting from such repository development. Impacts should be identified early in the repository development process, and be independently assessed by state, tribal, and local governments with Federal funding assistance prior to a Department of Energy application for a construction license. After the Nuclear Regulatory Commission decision to license repository construction has been made, Federal government impact payments should be made to states or tribes to distribute, in accordance with impact experienced, to affected jurisdictions.

RECOMMENDATIONS ON CONSULTATION AND CONCURRENCE

Scope of Consultation and Concurrence

The scope of the consultation and concurrence process should cover all issues related to a repository and include all stages from the earliest planning activities through to the decommissioning of the repository.

Site Characterization Program For High-Level Waste Repository and State Participation

The Council endorses the President's policy of an expanded site characterization process for the selection of a permanent high-level waste repository. The Council recognizes that it is necessary for all states and tribal nations to participate with the Federal government if this policy is to be implemented successfully.

Consultation between the Department of Energy and State and Tribal Governments

The State Planning Council recommends that the Secretary of Energy begin consultation with all states and tribal governments immediately by providing all states and tribes information on the national screening process for the selection of sites for high-level waste repositories.

Organization of Federal Activities

The Federal government, having the responsibility for the management of high-level waste, spent fuel, and transuranic wastes, must put forward through the Department of Energy a clearly structured interagency program plan. This plan should provide for effective participation of state, local, and affected tribal governments, and should identify the Federal officials responsible for initiating discussions with non-Federal government officials on transportation, treatment, storage, or disposal of high-level wastes.

Organization of State and Tribal Activities

Each state or tribe should designate a spokesperson to participate in discussions of policy issues with Federal officials. State or tribal governments, particularly those affected by having identified potential sites for a repository or other impacts, should designate an appropriate entity to organize their subordinate units to participate with the Federal government in policy and technical reviews of the site selection process.

Contents of Written Agreements

The results of the discussions of the consultation and concurrence process between the Federal government and state and affected tribal governments should be transformed into a written agreement or agreements in a timely manner, and should specify the spokesperson and responsibilities of the parties, identify procedures for consultation and concurrence, define planned activities and studies to be carried out, specify the Department of Energy funding of state or tribal activities, contain a schedule for key events and their description, give a time period for review and comment, and provide a conflict resolution mechanism and a separate overriding mechanism. It is anticipated that the agreement will be periodically updated to describe upcoming phases of work in detail while continuing the same principles.

Mechanism to Resolve Conflicts

The State Planning Council recommends that objections of states or tribes be resolved throughout site development by a process of negotiation and incremental decision making with officials of Federal implementation agencies (such as the Department of Energy, the Department of Transportation, the Department of the Interior, and the Department of Agriculture), which includes raising issues to senior officials as necessary and review by neutral third parties as mutually agreed. The Council recognizes that appeals to the President and members of Congress are always possible. A deadlock that cannot be resolved through such negotiations should be held open until a point in the repository development process at which decisions can be made through a formal process of petition to the President or the Congress.

States and tribes should be authorized by Federal law to petition the President for a formal review of their objections to the selection of a site for detailed site characterization. If the President decides to override the state's or tribe's objection, he should so report to the Congress, stating his reasons.

States and tribes should be authorized by Federal law to petition the Congress through the President for a formal review of their objections to a decision by the Department of Energy to seek long-term protection of a site judged to be qualified for a repository. These objections should be considered by Congress using expedited procedures and should be overridden only by affirmative action by both Houses of Congress.

If an affected tribe's objections to a decision to qualify a repository cannot be resolved in a mutually satisfactory manner, an Act of Congress would be required to override these objections.

Bases for Objections

The State Planning Council recommends that the Department of Energy and the Congress recognize that at the present time the following are the principal bases for state or tribal objections:

1. Unacceptable danger to public health and safety based on violation of criteria, rules, or standards established by the Nuclear Regulatory Commission, the Environmental Protection Agency, or the Department of Transportation, or in their absence, of interim criteria established by the Department of Energy.

2. Substantive violation of written agreements or Indian treaties.

3. Disagreement with the Department of Energy about sound scientific or technical practices prior to selection of site for licensing.

4. Failure to resolve inconsistencies with state or tribal regulations or law applied equally to all applicants, unless preempted by Federal law.

5. Adverse environmental and socioeconomic impacts that have not been resolved to the satisfaction of a state or tribe.

6. Failure of the Federal government to determine that Price-Anderson Act coverage applies Federal liability to transportation, disposal or other repository-related activities.

Affected States and Tribes

The State Planning Council recommends that states and tribes which apply for status as an affected state or tribe and demonstrate and document to the Department of Energy (at a public hearing if requested by the state) the bases for their concern about impacts from the proposed development of a repository site located in another jurisdiction should be granted by the Department of Energy the status of affected state or tribe. The Department of Energy, in consultation with the Department of Transportation, should publish criteria for qualification as an affected state or tribe, following an opportunity for public review of draft criteria. These should include consideration of major transportation impacts. Such affected states or tribes should have rights equivalent to those of host states in their specific areas of concern throughout all stages of repository siting, construction and operation. They should be entitled by law to representation on the review panel of the host state and to file independent objections to repository siting. The host states, however, should retain majority membership of such review panels. Affected states or tribes should negotiate written agreements with Federal agencies to define procedures and to receive Federal funds to perform analyses for their effective participation in decisions on their specific areas of concern.

Federal Legislation on Consultation and Concurrence

Any legislation dealing with consultation and concurrence processes should be flexible enough to permit many kinds of state/local/tribal participation and various conflict resolution mechanisms. The desired flexibility could be achieved by authorizing states and tribes to negotiate agreements with the Department of Energy, the Nuclear Regulatory Commission, the Department of the Interior or other relevant Federal agencies identifying the nature of their interactions for the development of repositories.

RECOMMENDATIONS ON STATE AND TRIBAL RELATIONS WITH THE NUCLEAR REGULATORY COMMISSION

The Council commented on the proposed 10 CFR 60, Procedural, in a letter to the Chairman of the Nuclear Regulatory Commission on September 17, 1980. (See Appendix C for the complete text of this letter.)

The Council made a number of specific recommendations to the Commission regarding state and tribal participation. These recommendations are summarized below:

1. All affected states, localities, and tribes should be kept fully informed of the Nuclear Regulatory Commission plans and actions through dissemination of environmental reports, applications, and other pertinent documents.

2. When the Department of Energy initiates detailed site characterizations, affected states and tribes should be invited by the Nuclear Regulatory Commission to participate with the Nuclear Regulatory Commission in any of its site-related activities.

3. States and tribes should not be exclusively responsible for proposing ways in which they would like to participate in Nuclear Regulatory Commission deliberations; participation should be part of Nuclear Regulatory Commission's policy commitments.

4. Indian tribes should have equivalent rights and privileges to those of the states in the siting and licensing of high-level waste repositories.

5. States should establish a process that will enable local governments to participate in the licensing process.

6. Potential host states and tribes should be given the right to participte in the licensing process, including hearings: (a) as a reviewer with the Nuclear Regulatory Commission of the materials received, with the right to question witnesses; and (b) as a party in the proceedings that may pursue a particular view in the matters under review. Affected states with interests in waste containment, transportation, or socioeconomic impacts should be fully consulted on the development and application of regulations, procedures, and national policy.

7. The Nuclear Regulatory Commission should provide funds to enable states and tribes to participate in the licensing and regulatory review process.

8. The Nuclear Regulatory Commission should hold public hearings on its review of a construction or operation license, and should coordinate with the Department of Energy in holding hearings on the site characterization plan.

The Council also made several specific recommendations regarding the Nuclear Regulatory Commission's programmatic requirements for the Department of Energy. These are summarized below.

1. The radioactive waste management program should be technically conservative, with a requirement for a broad hydrogeologic program including the investigation and comparison of a number of sites
2. The comparison should require four to five sites in a variety of geologic environments and diverse host media. As a minimum, at least three sites should be considered, with the anticipation that other high-quality sites could be found
3. There should be provisions for adequate instrumentation and monitoring before proceeding to full operations to ensure protection of the public health and safety and to provide data needed for eventual decisions to give up retrievability and to decommission.

IV. INTERIM STORAGE OF SPENT FUEL

BACKGROUND

The interim storage of spent nuclear power reactor fuel prior to its reprocessing or disposal has been a matter of growing national concern. Until 1976, the general expectation was that spent fuel would be commercially reprocessed. With the delay and subsequent deferral of commercial reprocessing, utilities have become concerned that adequate storage facilities might not be available for their inventories of spent fuel.

In 1977, the Federal government, through the Department of Energy offered to help resolve the spent fuel storage problem by taking title to some quantities of fuel and moving it to a Federal away-from-reactor storage facility. However, when President Carter issued his radioactive waste policy in 1980, Congress had not enacted the legislation required to implement it. Therefore, both the division of responsibility between the private and public sectors and the appropriate role for state, local, and tribal governments in decision making was unclear. Advising the Federal government on these matters was included in the State Planning Council's mandate.

DISCUSSION

In March 1981, the Reagan Administration discontinued efforts to develop Federally owned or operated away-from-reactor storage capacity for commercial spent fuel. This change means that the private sector will continue to be responsible for the storage of spent fuel, pending the availability of reprocessing or disposal capacity. The DOE currently estimates that the maximization of existing storage capacity at power plant sites will be sufficient to meet storage requirements for the next five years. However, utilities will need additional on-site or off-site facilities after that time, or they may have to shutdown individual reactors.

The Council endorses the policy of utility responsibility for interim spent fuel management. At the same time the Council recognizes that the success of this policy depends on the timeliness with which private industry can provide the required additional storage capacity. Potential obstacles to providing this capacity are primarily institutional rather than technical; they include continuing uncertainty regarding the availability of Federal storage capacity, potential for delays in the NRC licensing of additional capacity, lack of experience with new storage technologies, need for permission for state regulatory authorities, and restrictive state or local legislation.

In view of this situation, the Council recommends that the Federal government maintain a consistent commitment to a policy of private sector responsibility to create a more stable atmosphere in which the utilities can plan for the storage of spent fuel. The Council also recommends that Federal and state governments take certain steps to mitigate potential institutional obstacles. These include having the DOE provide assistance to utilities in the development and demonstration of new on-site dry storage technologies and having the NRC establish a more efficient and timely licensing process.

The Council recommends that states, recognizing their responsibility to assure their citizens a supply of uninterrupted electricity at reasonable cost, take actions to eliminate obstacles within their authority while considering public health and safety and citizens' concerns. States cannot avoid becoming involved in their utilities' interim storage efforts. Utilities may encounter institutional barriers that could be reduced by state actions, thereby preventing costly shutdowns. States could address these concerns through existing public utility commission procedures. On the other hand, they may want to establish additional mechanisms that consider the impacts of and alternatives to the utility's proposal, such as requiring certificates of need for energy-related facilities.

RECOMMENDATION

Interim Storage of Spent Fuel

The State Planning Council recognizes the urgent need for the development of additional spent fuel storage capacity by 1986. The State Planning Council recommends that the private sector be responsible for providing interim storage capacity for spent nuclear fuel and that state and Federal authorities address institutional obstacles which could prevent utilities from fulfilling this responsibility.

The Federal government has a role to play in assuring adequate storage capacity. The Federal government should: maintain a constant policy regarding private responsibility for interim storage of spent fuel; continue to monitor and assess utility progress in developing adequate, timely capacity; and facilitate interstate cooperation when utilities propose to transport spent fuel across state lines. The Department of Energy should continue to work cooperatively with industry to develop and demonstrate new technologies such as rod consolidation and dry storage techniques. The Department of Energy should ensure that these techniques are available for use by 1986. To facilitate licensing, the Nuclear Regulatory Commission should:

1. Work cooperatively with the Department of Energy and the industry to evaluate the new technologies to identify potential public health and safety problems that would require additional research;

2. If practicable, issue generic guidance on such technologies to aid utilities to move through the licensing process without undue delays; and

3. Publish reasonable target time schedules to assure timely disposition of license applications under 10 CFR Part 72 and/or 10 CFR Part 50.

The Nuclear Regulatory Commission should require life-time spent fuel storage capacity as a condition for licensing new plants.

The states have a responsibility to assure an uninterrupted supply of electricity to their citizens at reasonable cost. States must, therefore, facilitate utility efforts to develop or share safe storage capacity while considering public health and safety and citizens' concerns regarding utility spent fuel storage proposals. States must recognize that, if they do not act to resolve institutional obstacles within their authority, this may lead to the interruption of electricity supply at reasonable cost or result in Federal actions to assure a stable supply of electricity in the national interest.

V. LOW-LEVEL WASTE

BACKGROUND

The area of radioactive waste management in which states first played a major role was the disposal of commercial low-level wastes. Between 1962 and 1971, six shallow land burial sites were opened around the country by private firms, with the consent and encouragement of the host states. Under agreements with the Atomic Energy Commission and later with the Nuclear Regulatory Commission, state authorities regulated all but one of these facilities under the Agreement States Program. The resulting system of regional low-level waste disposal sites served everyone's needs for several years.

By 1978, however, three of these sites had closed because of operational difficulties or exhaustion of available space. The remaining host states–South Carolina, Nevada, and Washington–were thereafter required to handle the full volume of commercial low-level waste plus some low-level waste generated by the Federal government. The facility in South Carolina, the single site east of the Rockies, received 80 percent of the nation's waste.

Over time, the governors and legislatures of the three states became concerned that no new facilities were planned to replace those that had closed. In the summer of 1979, Governor Richard W. Riley of South Carolina, Governor Dixy Lee Ray of Washington, and Governor Robert List of Nevada announced that their states would not indefinitely assume the full burden of the nation's low-level waste disposal problems. They called for the establishment of additional low-level waste disposal sites. They also expressed concern with the failure to regulate adequately the packaging and shipping of low-level wastes. The governors called upon Federal authorities and generating states to make a greater effort to ensure that wastes were properly packaged and shipped to the disposal sites.

In the fall of 1979, the three governors began strict enforcement of shipping and packaging standards. The sites in Nevada and Washington were temporarily closed because of an unacceptable number of violations. In addition, Governor Riley announced that the volume of wastes accepted at the South Carolina site would be reduced by 50 percent over a two-year period. These actions focused the attention of the nation on the need for developing additional low-level waste disposal sites.

A 1978 report of the DOE Task Force for Review of Nuclear Waste Management suggested that the Federal government assume responsibility for the disposal of commercial low-level waste. The successor report, completed in 1979 by the Interagency Review Group on Nuclear Waste Management, modified this proposal. A Presidential Interagency Review Group report recommended that states have the option of handling the problem themselves or relying on the Federal government. Similar proposals for Federal action were brought up in the Congress.

The governors of the three host states responded by calling for a national policy making states responsible for low-level waste. Their proposal led the National Governors' Association to establish a task force to identify strategies for developing additional disposal sites. In President Carter's message to the Congress on radioactive waste management, he endorsed the actions the nation's governors were taking to tackle this problem and he directed the Council to advise on this matter.

DISCUSSION

The Council recommended that national policy be redefined to make states responsible for ensuring the safe disposal of commercial low-level radioactive waste and for seeing that the required new sites are developed. In making this recommendation, the Council recognized that every state generated low-level waste. It concluded that state officials should be able to regulate the disposal of these wastes and that they are capable of resolving the political and institutional obstacles to opening new sites.

National Policy

The Council called upon the Congress to establish this new national policy by law. It recommended that the legislation contain several specific provisions concerning regional authority, regulatory requirements, and perpetual care.

The Council recommended that the legislation authorize the establishment of interstate compacts and give the compacts the right to exclude wastes generated outside their jurisdictions. The compacting and exclusionary authorities are designed to ensure that sites developed by compacts are not subject to demands for disposal capacity from states which do not make a good faith effort to manage their own disposal problem. In calling for this exclusionary authority, however, the Council did not preclude the possibility of interregional cooperation in the management of disposal capacity where it is deemed mutually beneficial.

It is generally accepted that state regulatory control over the disposal of low-level waste is essential if states are to assume responsibility for managing their own wastes. The NRC Agreement States already have this authority, but other states do not. Some form of Agreement State status, which is limited to responsibility for regulation of low-level waste disposal, could facilitate the adoption of this regulatory function by the other states.

Together with the establishment of regional systems to manage low-level waste and the potential for interregional agreements for managing some of these wastes, the Council believes a set of minimum national standards would be desirable. Federal legislation is required to ensure that the Agreement States meet national minimum standards.

Implementing Actions

The Council has recommended several actions state and Federal authorities should take to implement this national policy on low-level waste.

Each state should make an inventory of the volume of low-level waste generated within its boundaries and develop an interim storage contingency plan. The implications of volume reduction techniques on the state's disposal requirements should be evaluated, and a plan for terminal disposal of low-level waste either inside the state or at a regional site should be developed. Responsible parties within the state, who would carry out such a plan, should be identified. The Council also recommended that states begin holding meetings on regional solutions. Finally, it offered to help the states carry out these activities in cooperation with the National Governors' Association and the National Conference of State Legislatures.

The Council urged that Federal support be made available to assist the states, during a transition period, in assuming these new responsibilities. And it called upon the Environmental Protection Agency and the NRC to provide the necessary standards and criteria to guide the implementation of a regional system of low-level waste disposal sites.

CURRENT STATUS

The National Governors' Association, the National Conference of State Legislatures, and other organizations have endorsed the basic elements of the national policy for low-level radioactive waste that the Council recommended.

In December 1980, Congress passed the Low-Level Radioactive Waste Policy Act of 1980. (See Appendix D for the text of the Act.) The Act incorporates the provisions recommended by the Council relating to state responsibility for the safe disposal of low-level wastes, authority to compact for regional disposal solutions (subject to approval by the Congress), and authority for compacts to exclude waste from outside the region after January 1, 1986.

In addition, the NRC has revised its Statement of Policy to allow states to enter into agreement with the Commission for the regulations of low-level waste only. The NRC will seek Congressional action during the 97th Congress to confirm this policy and to require minimum national standards.

To date, more than 20 states have completed or are conducting studies of their low-level waste management requirements. During the past six months, groups of states in each section of the country have met to discuss alternatives for regional management of low-level waste. An interstate compact has been drafted and adopted by four states in the Northwest region, and a draft compact is expected to be ready for submission to state legislatures in the Southeast by January 1982.

The DOE and the NRC are currently supporting state activities for low-level waste management. On June 29, 1980, the Commission approved 10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste," as a proposed rule for public comment. The proposed rule defines licensing requirements for land disposal of low-level radioactive waste.

RECOMMENDATIONS

National Low-Level Radioactive Waste Policy

> The State Planning Council recommends that the national policy of the United States on low-level radioactive waste shall be that every state is responsible for the disposal of low-level radioactive waste generated by nondefense-related activities within its boundaries, and that states are authorized to enter into interstate compacts, as necessary, for the purpose of carrying out this responsibility.

Authority for Low-Level Waste Compacts

The State Planning Council recommends that Congress enact legislation authorizing the states to enter into compacts without requiring subsequent Congressional ratification.

Exclusionary Authority

The State Planning Council recommends that host states or regional compacts should be authorized by Federal statute to exclude from their disposal sites waste generated outside the state or the region.

Nuclear Regulatory Commission Agreement States

The State Planning Council recommends that the Atomic Energy Act be amended to clarify the Nuclear Regulatory Commission's authority to enter into an agreement with a state solely to authorize state regulation of the disposal of low-level radioactive waste. The State Planning Council urges immediate Congressional action on this amendment.

Minimum National Standards for Low-Level Radioactive Waste Disposal

The State Planning Council recommends that Congress enact legislation to ensure that Agreement States meet nationally uniform minimum standards for protection of public health and safety in the disposal of low-level waste.

Transfer of Low-Level Radioactive Waste Disposal Site to Federal Government for Extended Care

The State Planning Council recommends that Congress enact legislation to provide that, upon satisfactory decommissioning and termination of a license for a new or existing low-level waste disposal site, title to the site may, at the host state's option, together with the perpetual care fund, be transferred to the Federal government for the purposes of extended care.

State Initiatives for Low-Level Waste

The State Planning Council recommends that each state develop a comprehensive plan for the management of its low-level waste generated within its borders, and that the Department of Energy support individual states in the development of these plans, including provision of appropriate resources for this purpose.

Regional Initiatives for Low-Level Radioactive Waste Disposal

The State Planning Council recommends that Regional conferences be convened as soon as possible to address the need for additional disposal sites and the options for regional facilities, and that these conferences be hosted by states. The State Planning Council will assist the conference host states with these conferences in cooperation with the National Governors' Association and the National Conference of State Legislatures.

State Planning Council Representation in Regional Conferences

The State Planning Council authorizes the Chairman to designate a member of the Council in each region of the country to represent the Council in the organization and hosting of the low-level conference in that region.

Technical and Financial Support

The State Planning Council recommends that Congress authorize the Department of Energy and the Nuclear Regulatory Commission to provide technical and monetary support by the appropriate mechanisms to individual states for the development of sites for Regional use.

Impact Assistance for Low-Level Radioactive Waste Disposal Sites

The State Planning Council recommends that Congress create a special discretionary fund, which would confer benefits to host states, tribal governments, and local communities to accomplish at least three major purposes: (a) to compensate for significant effects to the infrastructure of the community hosting a low-level nuclear waste facility, (b) to provide effective inducements to develop regional low-level nuclear facilities, and (c) to promote public acceptance of low-level nuclear waste disposal sites.

Nuclear Regulatory Commission 10 CFR 61

The State Planning Council urges the Nuclear Regulatory Commission to accelerate the date for publishing 10 CFR 61 and the entire waste classification system. Such guidance is critical to developing a low-level radioactive waste management system. The Nuclear Regulatory Commission is urged to consult with the State Planning Council regarding the definitions of low-level radioactive waste.

Environmental Protection Agency Position Paper on Low-Level Radioactive Waste Standards

The State Planning Council urges the Environmental Protection Agency to complete a position paper on low-level waste radiation protection standards for use by the Federal agencies until the final standards are promulgated.

VI. TRANSPORTATION

BACKGROUND

In the area of radioactive waste transportation, states can assume responsibility for inspection to ensure compliance with radiological and general transport regulations, for the maintenance of highways, and, in conjunction with local governments, for emergency response. Under the Hazardous Materials Transportation Act of 1974 and the Atomic Energy Act, as amended, the U.S. Department of Transportation (DOT) has had the authority to establish a comprehensive regulatory framework and to preempt some state and local government regulation of the transportation of radioactive waste. However, until recently, it did not exercise that authority.

By the mid-1970's, heightened public interest in radioactive waste transportation and the lack of a Federal regulatory framework led many states and localities to act on their own authority to fill the void. By 1980, more than half the states and many localities had passed laws or ordinances that regulated, limited, or prohibited the movement of radioactive wastes through their jurisdictions.

As the number of these actions grew, generators, commercial shippers, and the Federal government became concerned that transportation might become increasingly difficult and costly. In 1978, responding to these concerns, the DOT began a rulemaking (DOT Docket No. HM-164, "Highway Routing of Radioactive Materials") to establish uniform highway routing regulations. The Executive Order creating the Council instructed it to advise on proposed Federal regulations, standards, and criteria and to make recommendations on matters related to the transportation of radioactive waste.

DISCUSSION

The transportation of radioactive materials is required for numerous applications of nuclear technology by utilities, Federal agencies, hospitals, universities, and research institutions. A regulatory framework that applies to all radioactive waste shipments and ensures the protection of public health and safety without unduly burdening the free flow of commerce is an essential element of national policy.

The regulatory framework must balance national uniformity with a state's long-standing authority to regulate transportation, which is derived from its police powers. This balancing process requires a working partnership between state, local, and tribal decision makers and Federal officials on proposed rulemakings. Clearly identified roles must be established for state, local, and tribal governments in the development and enforcement of transportation regulations. The Federal government should provide technical and financial assistance to help them implement their regulatory responsibilities.

The Council first expressed these principles in its comments on the DOT's proposed rulemaking on highway routing of radioactive materials and waste. In considering the rulemaking, the Council issued a number of recommendations for implementing the partnership principles. The Council called for a uniform national highway routing system based on the process of consultation and concurrence. In addition, the Council called for a system to notify state officials of the movement of radioactive materials on highways within their jurisdiction. It also expressed the principle that states should have the lead responsibility for developing and implementing emergency response plans and procedures for dealing with transportation accidents.

The Council has expanded these principles in proposing a national transportation policy statement. This statement covers issues such as routing, prenotification, packaging, enforcement, and emergency response. In constrast to the circumstances surrounding high-level and low-level radioactive wastes, the Council does not believe that Federal legislation is necessary to enact its recommendations on transportation policy. The principles contained in the Council's proposal can be implemented by refining the regulatory regime authorized under existing statutes.

Of particular concern to state and tribal governments is the issue of advance notice of certain shipments of radioactive materials across their borders. The Council endorses advance notification in the shipment of certain radioactive materials for use by appropriate state, local, and tribal authorities. Prenotification information will assist officials responsible for managing emergency situations, give local officials an opportunity to be involved in decisions related to highway maintenance and construction, facilitate an effective inspection and enforcement program, and enable officials to be more responsive to local concerns.

CURRENT STATUS

The Department of Transportation adopted some of the Council's recommendations when it issued the final routing rule, which will become effective on February 1, 1982 (46 *FR* 5289, January 19, 1981). The DOT rule deferred consideration of promulgating a national prenotification rule pending the outcome of the NRC's rulemaking on this topic (45 *FR* 81,058, *FR* 81,061 December 9, 1980). However, the DOT rule requires existing state or local prenotification rules to be held inconsistent (Appendix A [Section VI, E]). The Council has opposed Federal preemption of existing prenotification systems before a national uniform system is implemented, and would support an override of a state or local government's prenotification requirement only if it does not meet the national standards.

RECOMMENDATIONS

National Transportation Policy

A safe, reliable system for transporting radioactive wastes is crucial to any radioactive materials management program. Therefore, the State Planning Council on Radioactive Waste Management recommends a comprehensive national transportation policy that contains the following:

Routing

1. An appropriate level of national uniformity in the routing of radioactive materials and waste is desirable. The routing system should be achieved through Department of Transportation rules and regulations developed through a process which ensures intergovernmental cooperation.

2. The Interstate system should serve as the central element in a system of preferred highways for the routing of radioactive materials. States and, where appropriate, tribal governments should have primary responsibility for designating substitute and additional highway routes.

3. Explicit criteria for the designation of substitute and additional highways, which recognize public health and safety as the highest priority, should be developed by the Department of Transportation in cooperation with state, local, and tribal governments.

4. If states and, where appropriate, tribal governments desire to develop alternative routes, they should be required to develop appropriate mechanisms and procedures to enable local participation in routing decisions.

5. Any consideration of alternative modes of transport, such as rail and barge, for radioactive materials and waste should emphasize, but not be limited to, public health and safety considerations. Alternative modes of transport for large quantity shipments of radioactive waste should be further examined by responsible Federal agencies in cooperation with state, local, and tribal governments addressing analyses of specific routes to facilities, in order to determine whether additional routing or other requirements are warranted.

Prenotification

6. Existing prenotification systems should not be preempted until the Department of Transportation and the Nuclear Regulatory Commission promulgate a uniform prenotification system, developed in consultation with and for use by state, local and tribal governments. State and tribal governments which desire prenotification of high-level or large quantity shipments of radioactive materials, including spent fuel, through their borders should be able to receive that information consistent with a uniform system to be developed.

Packaging

7. The Department of Transportation and the Nuclear Regulatory Commission should maintain and periodically review standards that assure a high degree of packaging integrity and safe shipping practices to assure public health and safety. The Department of Defense and the Department of Energy should assure that their practices continue to remain equivalent to the Department of Transportation and the Nuclear Regulatory Commission standards.

Enforcement

8. The Federal government in cooperation with states and, where appropriate, tribes must maintain a strong, uniform, and consistent enforcement program governing radioactive material transportation. States which assume the lead role in enforcement of Federal regulations should work in cooperation with local and tribal governments.

9. Generators and shippers of radioactive waste, including spent fuel, are primarily responsible for the safety and integrity of all such shipments. In support of this primary responsibility, each state must recognize a responsibility for assuring the safety and integrity of radioactive material shipments originating within its borders, except for shipments arising out of national security or defense functions of the United States.

10. The Federal government shall be responsible for assuring the safety and integrity of radioactive material shipments arising out of national security or defense functions.

Emergency Response

11. States and, where appropriate, tribal governments should have the lead role for developing emergency response plans for dealing with transportation accidents involving radioactive materials and waste. In developing overall state emergency response plans, states should involve Federal and local government officials and recognize the diversity of situations and capability which exists at the local level.

12. States and, where appropriate, tribal governments should take full advantage of private sector, local, state and Federal resources. They should receive Federal assistance as appropriate for the development and implementation of emergency response plans and for the enforcement of Federal regulations.

VII. NATIONAL PLANNING

BACKGROUND

The need for a comprehensive radioactive waste management policy was highlighted by the draft report of the Department of Energy's Task Force for Review of Nuclear Waste Management. The subsequent report of the Interagency Review Group on Nuclear Waste Management acknowledged the need for an integrated waste management program and improved coordination among Federal implementation and regulatory agencies. Developing a National Plan to achieve these goals will have significant consequences for state, tribal, and local governments.

The President's message to Congress on radioactive waste management instructed the DOE to prepare, in coopération with the other Federal agencies, a detailed National Plan for Radioactive Waste Management to implement Presidential policy guidelines and the recommendations of the IRG. The President directed that the National Plan should include specific program goals and milestones for all aspects of radioactive waste management.

The Executive Order creating the State Planning Council instructed it to be directly involved in the development of the National Plan and to "review the development of comprehensive nuclear waste management plans" and "provide recommendations to ensure that these plans adequately address the needs of the state and local areas affected."

DISCUSSION

The Council recognized the importance of a national planning process for implementing an integrated radioactive waste management program. A National Plan, which would be updated periodically, is vital to improve coordination among the Federal agencies, to build and maintain the Federal/state/tribal partnership, and to involve the public in the decision making process.

The Council convened a workshop to review an early working draft. Comments from the workshop were provided to the DOE and were incorporated in subsequent drafts.

CURRENT STATUS

On January 8, 1981, the DOE sent the fourth working draft of the National Plan to all governors and members of Congress for comments prior to formal public review. The Council also wrote to all governors urging them to review this draft carefully and noting that their comments could help bring about important improvements in the document.

More than 20 states offered comments on this draft plan. The DOE has proposed a revised draft, incorporating changes in Administration policy and comments from the states. This revised draft has not yet been released for public comment.

RECOMMENDATIONS

The Council made five recommendations on the national planning effort in letters to the President and the Secretary of Energy on January 13, 1981. (See Appendix E for the full text of the letter.) The following is a summary of the recommendations adopted by the Council.

1. The National Plan process should go forward in order to provide continuity and integration to the overall national radioactive waste management effort.

2. National planning for radioactive waste management should avoid abrupt changes in direction to prevent further deterioration of program credibility and loss of time.

3. The national planning effort must be based on a cooperative and continuing intergovernmental (Federal, state, and tribal) partnership, which requires that states and tribes are able to affect decisions and plans before their official release for public comment.

4. The Council believes that public participation in waste management planning and programs is sufficiently important to deserve the same quality of thought, commitment, and implementation as technical programs.

5. The National Plan must identify clearly and candidly the key technical, institutional, and policy issues and the strategies, experiments, and activities for resolving them.

VIII. ONGOING AGENDA

Sound technical solutions to the problems of radioactive waste management cannot be implemented without public acceptance, and gaining public acceptance requires a process of decision making that will engender the confidence of the American people. An open dialogue and a cooperative working partnership between the Federal government and state, local, and Indian tribal governments are integral parts of this process. Drawing on the traditional strength of our Federal system, it is possible to establish an intergovernmental partnership that involves affected parties in decision making.

The recommendations of the State Planning Council, if acted upon, can lead to an environment in which elected officials, at all levels of government, can reach a concensus on the means to dispose of the nation's radioactive waste while protecting public health and safety.

With this report, the Council has fulfilled its mandate. It has offered a national agenda to guide future management of radioactive waste. The Council urges the Administration and the Congress as well as state, local and tribal government officials to work together to carry out this agenda through the following actions. The Council believes that a continuing formal dialogue among Federal, state, local and tribal officials will strengthen the intergovernmental partnership and facilitate the implementation of these national radioactive waste management policies.

HIGH-LEVEL WASTE

Of greatest importance is the need for Congress to enact legislation that establishes the national policy and intergovernmental framework for the permanent disposal of high-level (HLW) and transuranic (TRU) wastes. The legislation should apply to all high-level and transuranic wastes regardless of the source. Public acceptance of the national repository program will be eroded if the American people perceive that differing programmatic and institutional arrangements have been established to dispose of wastes which are essentially the same from the perspective of public health and safety.

The legislation should specify the principal elements of the national repository program. These include:

- A technically conservative program based on the investigation of multiple sites
- Target time schedules for meeting key objectives
- A consultation and concurrence process for state and tribal participation in the program, including a conflict resolution mechanism to be used in case consensus is not achieved between the Federal government and a state or a tribe on a proposed repository site.

- The role of any demonstration or test facilities in achieving the primary program objectives

- Mechanisms to recover the costs of disposal from the generators of the waste and to compensate the host state or tribe for the socioeconomic impacts of repository development

- An extension of the NRC licensing authority to new facilities for the permanent disposal of transuranic wastes above the EPA standard.

In addition to Congressional action, the President must ensure effective coordination among executive branch agencies. The Federal regulatory agencies should complete the statutorily authorized regulatory framework. State and tribal governments need to establish the necessary procedures and mechanisms to ensure their effective participation, and that of their local officials, in the national repository program. The DOE and potential host states and tribes may be reluctant to sign such agreements in the absence of a Federal law which defines their role in the national program.

SPENT FUEL

To ensure that utilities have a greater degree of certainty and the incentive required to plan and provide the necessary storage capacity for their spent fuel, the President and the Congress must firmly maintain the current national policy, which requires the industry to provide this capacity. The DOE should work cooperatively with the industry to develop and demonstrate new storage technologies. The NRC should take appropriate actions, consistent with public health and safety, to expedite licensing proceedings for existing and new storage techniques. Finally, state officials must take reasonable steps to address potential institutional obstacles to proposals for storage of spent fuel within their jurisdiction.

If unforeseen technical obstacles require that national policy be changed to authorize the Federal government to provide back-up storage capacity for spent fuel, the Council has concluded that several principles should be incorporated into that policy. A full statement of these principles is contained in Appendix F.

LOW-LEVEL WASTE

States which have not done so must complete a comprehensive study that documents their current and future volumes of commercially generated low-level radioactive waste, defines the alternatives available for treatment and disposal of these wastes, and develops an institutional process for selecting among these alternatives. States intending to form a regional compact should expedite their discussions in order to have treatment and disposal capacity in place by January 1, 1986, the date when approved regional compacts will be allowed to exclude wastes from outside the region.

The Nuclear Regulatory Commission and the Environmental Protection Agency must complete the regulatory framework for low-level waste management under the new national policy. The Department of Energy should continue to provide technical and financial assistance to states during the transition phase when this new policy is being implemented. Congress should authorize the transfer of properly decommissioned low-level waste burial sites to the Federal government for extended care.

TRANSPORTATION

The Department of Transportation and the Nuclear Regulatory Commission must revise the existing regulations to enable interested states and tribes to receive advance notification of radioactive waste shipments through their jurisdictions in accordance with appropriate uniform national standards. The DOT must provide assistance to states in developing procedures for designating alternative routes. States and tribes that assume the lead enforcement authority must maintain a strong and consistent inspection program. Moreover, states should be encouraged to develop, in cooperation with local officials, emergency response plans for dealing with accidents. States must also consider transportation issues in the development of their regional compacts for low-level waste management.

APPENDIX A
EXECUTIVE ORDER
12192

EXECUTIVE ORDER

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THE STATE PLANNING COUNCIL ON RADIOACTIVE WASTE MANAGEMENT

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to create, in accordance with the provisions of the Federal Advisory Committee Act, as amended (5 U.S.C. App. I), an advisory committee on radioactive waste management, it is hereby ordered as follows:

1-1. Establishment.

1-101. There is established the State Planning Council on Radioactive Waste Management.

1-102. The Council shall be composed of eighteen members as follows:

(a) Fourteen members designated by the President as follows:

(1) Eight Governors of the various states.

(2) Five state and local elected government officials other than governors.

(3) One tribal government representative.

(b) The heads of the following Executive agencies:

(1) Department of the Interior.

(2) Department of Transportation.

(3) Department of Energy.

(4) Environmental Protection Agency.

(c) The Chairman of the Nuclear Regulatory Commission is invited to participate in the activities of the Council; representatives of other departments and of United States territories and the Trust Territory of the Pacific Islands are invited to take part in the activities of the Council when matters affecting them are considered.

1-103. The President shall designate a Chairman from among the members of the Council.

1-2. Functions.

1-201. The Council shall provide advice and recommendations to the President and the Secretary of Energy on nuclear waste management (including interim management of spent fuel). In particular, the Council shall:

(a) Recommend procedural mechanisms for reviewing nuclear waste management plans and programs in such a way to ensure timely and effective State and local involvement. Such mechanisms should include a consultation and concurrence process designed to achieve Federal, State, and local agreement which accommodates the interests of all the parties.

(b) Review the development of comprehensive nuclear waste management plans including planning activities for transportation, storage, and disposal of all categories of nuclear waste. Provide recommendations to ensure that these plans adequately address the needs of the State and local areas affected.

(c) Advise on all aspects of siting facilities for storage and disposal of nuclear wastes, including the review of recommended criteria for site selection and site suitability, guidelines for regional siting, and procedures for site characterization and selection.

(d) Advise on an appropriate role for State and local governments in the licensing process for nuclear waste repositories.

(e) Advise on proposed Federal regulations, standards, and criteria related to nuclear waste management programs.

(f) Identify and make recommendations on other matters related to the transportation, storage, and disposal of nuclear waste that the Council believes are important.

1-202. Within one year after the Council's first organizational meeting, but in any event not later than seventeen months after the issuance of this Order, the Council shall prepare and submit to the President a public report on its functions set forth in Section 1-201.

1-3. Administrative Provisions.

1-301. Subcommittees of the Council may be established in accordance with the provisions of the Federal Advisory Committee Act, as amended.

1-302. The members of the Council, including the members of its subcommittees, who are not otherwise paid a salary by the Federal Government, shall receive no compensation from the United States by virtue of their service on the Council, but all members may receive the transportation and travel expenses, including per diem in lieu of subsistence, authorized by law (5 U.S.C. 5702 and 5703).

1-303. To the extent permitted by law, and subject to the availability of funds, the Secretary of Energy shall provide the Council, including any subcommittees, with necessary facilities, support, and services, including staff and an executive director.

1-4. General Provisions.

1-401. Notwithstanding the provisions of any other Executive order, the functions of the President under the Federal Advisory Committee Act, as amended (5 U.S.C. App. I), except that of reporting annually to the Congress, that are applicable to the Council, shall be performed by the Secretary of Energy in accordance with guidelines and procedures established by the Administrator of General Services.

1-402. The Council shall terminate thirty days after it transmits its final report to the President, but in no event shall it terminate later than eighteen months after the effective date of this Order.

Jimmy Carter

THE WHITE HOUSE,

February 12, 1980.

APPENDIX B

PROCEDURES AND MEETINGS OF THE COUNCIL

At its first meeting the Council authorized the Chairman and the Vice-Chairman to establish an independent staff for the Council in cooperation with the Secretary of Energy, as provided by Section 1-303 of the Executive Order (No. 12192) establishing the Council. Each Member, Special Advisor, and the Observer also agreed to designate an individual from his or her own staff as a Staff Alternate to assist the Council staff in preparing for Council meetings.

Subsequently the Council adopted procedures for the conduct of its meeting and the activities of the Council staff based on the procedures used by the U.S. Advisory Committee on Intergovernmental Relations. Networks of individuals were established for each of the major issue were as under consideration by the Council. These networks were composed of individuals from a broad spectrum of background and expertise, including: Staff Alternates, Federal agency representatives, representatives of state, local and tribal governments, individuals from the industry and public interest groups, and academics. These groups assisted the Council staff in reviewing issues and in identifying proposed policies and procedures for consideration by the Council.

The results of this effort were submitted to the Staff Alternates for their review. The Staff Alternates met prior to each Council meeting to advise the Council Staff on the preparation of the final materials for the subsequent Council meeting. Following this meeting, the Council staff prepared a Docket Book containing background material and draft resolutions covering the issues which were on the agenda for the Council meeting. Docket Books were sent to all Members, Special Advisor, and the Observers prior to each Council meeting. They were also distributed to all persons on the Council's mailing list.

The Council held six formal meetings. Notice of meetings of the Council were placed in the Federal Register in accordance with Federal Advisory Committee Act provisions. In addition, notice of the meetings were sent to all persons on the Council's mailing list. All meetings of the Council were open to the public. Following each meeting, the recommendations adopted by the Council were fowarded to the President and other appropriate Federal officials, and copies were distributed to all persons on the Council's mailing list.

APPENDIX C

LETTER TO CHAIRMAN OF NRC ON 10 CFR 60, PROCEDURAL
(September 17, 1980)

STATE PLANNING COUNCIL
ON
RADIOACTIVE WASTE MANAGEMENT

RICHARD W. RILEY
Chairman

17 September 1980

Honorable John Ahearne
Chairman
Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Ahearne:

The State Planning Council on Radioactive Waste Management was charged by the President to advise on proposed Federal regulations, standards, and criteria related to nuclear waste management programs. We thank you for your invitation to comment on the proposed procedural rule to 10 CFR 60 for high level radioactive wastes, and for enabling us to serve State, Local and Tribal interests in this way. The State Planning Council and its staff have benefitted from informal discussions with NRC staff and from review of documents suggested or made available by NRC staff. We appreciate the availability and willingness of your staff to assist in our consideration of these issues.

Consistent with the Council's charter, we will attempt to confine our comments to those aspects of 10 CFR 60 that pertain directly or indirectly to State and Tribal interests in the siting and licensing of a high level waste repository. The material enclosed with this letter has been reviewed by members, special advisors, and staff alternates of the State Planning Council, and is in addition to whatever comments they or others from their organization may have provided to the Commission.

We are aware that NRC has been interested for some time in means of improving State/Local/Tribal participation in the Federal high level radioactive waste management program, and that Congress has encouraged this interest. NRC has reported to Congress, as recently as March 1979, (NUREG-0539) on some of its efforts to improve the participation of non-Federal governments in the siting, licensing and development of Federal waste facilities. We found the tone and substance of that report to be very supportive of State/Tribal interests and concerns.

We regret that the proposed rule seems to be inconsistent with the cited NUREG document. The proposed rule is unclear and is inadequate with regard to positive guidance for State/Local/Tribal governments to enable them to participate effectively in the decision making process. Furthermore, the materials NRC submitted to the State Planning Council on May 15, 1980, for consideration at its June 4 meeting were also more supportive of an effective State/Local/Tribal role than is the proposed procedural rule. The Council suggests that as a minimum, the proposed rule reflect both the NUREG document and the more recent materials sent to the Council.

The Council recognizes that the major thrust of 10 CFR 60 procedural is to guide DOE as the only possible applicant to develop and operate new high level waste repositories. The Council believes, however, that there must also be effective means for the participation of State/Local/Tribal Governments. This asymmetric thrust toward guiding DOE rather than State/Local/Tribal Governments can be corrected in several ways:

(1) By adding to the proposed rule guidance to non-Federal government groups.

(2) By leaving the proposed rule little changed, and promptly issuing additional guidance in a formal Commission statement of policy on State/Local/Tribal participation.

(3) By deleting from the proposed rule all material related to State/Local/Tribal participation and promptly issuing a formal Commission statement of policy on such participation.

We note on page 70412 of the supplementary material accompanying the proposed procedural rule that "The Commission intends to develop further guidance to assist the States in planning for such participation" (in the siting, planning and development of new geologic repositories). We request that the Commission immediately provide a policy document to formalize guidance that is mostly lacking from the proposed procedural draft. We also urge that improvements to the proposed rule be made to the extent possible prior to publication, based on the comments in the enclosed document.

Our comments are based on the presumption that, although NRC has sole authority under law to make licensing determinations, it nevertheless would be desirable to establish procedures for State/Local/Tribal participation which enables them to review, comment and make effective recommendations. The Council has resolved that there should be full sharing of information and plans among all levels of Government and an opportunity for all State, Local and Tribal Governments to participate effectively in the decision making process. We do not think it is reasonable to assume that all non-Federal governmental organizations will be familiar with NRC Rules of Practice and other administrative procedures or that they can secure the necessary information and plans of NRC and other Federal agencies to effectively participate in the decision making process. Thus, further guidance from the Commission will be needed to accomplish these objectives.

I hope that the enclosed comments will be of use to you and your staff. If you have questions concerning these comments, please contact me or Dr. David Stewart of the SPC staff at (202) 785-2901.

Sincerely,

Richard W Riley

Governor Richard W. Riley
Chairman

RWR:jc
Enclosures
cc: Members, Special Advisors, and
Observers of the State Planning
Council on Radioactive Waste
Management

SPECIFIC STATE PLANNING COUNCIL COMMENTARY ON 10 CFR 60 PROCEDURAL RULES

No State Concurrence Rights in NRC Licensing of New High Level Waste Repositories

The Council has been informed that NRC has no legal basis for sharing with States its authority to make findings related to public health and safety and national defense and security, and thus NRC cannot give States the right of concurrence in its licensing actions for new high level waste repositories. Thus NRC has sole authority to make such determinations.

- The Council accepts that States should not share in this authority of NRC.

Any rights of concurrence that States possess should be exercised in their relationship with the Department of Energy, and should be invoked separately from NRC decisions.

As one example of this principle, a decision by NRC to issue DOE a construction authorization should not be taken by DOE to be a final decision or mandate to construct a repository. The decision by DOE to implement a NRC construction authorization is a separate and subsequent action in which States/Tribes may wish to exercise a right of concurrence, using as a basis the information developed in NRC's hearings, any additional and relevant material available to the State/Tribe, and satisfaction of State/Tribal concerns such as access rights, police authority, etc.

As another example of this principle, State/Local concurrence in a DOE proposal to follow a certain process in attempting to identify a site for characterization does not bind NRC to accept a site found by that process.

Importance of Keeping State/Local/Tribal Governments Fully Informed

The Council in its conceptual definition of the Federal/State/Tribal partnerships specified the importance of full sharing of information and plans among all levels of government as being crucial to the successful resolution of all radioactive waste disposal problems.

- Notwithstanding the Rules of Practice, 10 CFR 2.101, sections 60.22(d) and 60.24(c), should state that copies of any filings with NRC of environmental reports, applications, amendments or updates thereto will be sent to all affected States, Local jurisdictions and Indian Tribes by the applicant.

Participation in the NRC Licensing Process

The Council believes that many of the provisions of the proposed Subpart C are appropriate and serve to protect State/Local/Tribal interests. Review of site selection procedures, methods and criteria should precede or be in close parallel to the use of these procedures, methods and criteria. State/Local/Tribal governments have specific expertise and interests in these matters and there are several existing methods (The Intragovernmental Personnel Act, or direct NRC contracts) through which affected State/Local/Tribal governments could participate with NRC in any site-related activities carried out by NRC.

- Following notification by DOE of an intention to initiate an extensive site characterization effort at a particular site, affected States/Tribes should be invited by NRC to participate with NRC in any of its site-related activities.

The Council wishes to make several proposals in regard to Parts 60.62 and 60.63. As written, 60.62 places the onus on each individual State, albeit with cooperation from NRC staff that are to be made available, to propose ways in which they would like to participate in the licensing process. Such requests must be made in writing to the NRC and be signed by the Governor. The Council's June 4 resolution states that the Federal/State/Local/Tribal partnership must afford opportunity for all State, Local, and Tribal governments to participate effectively in the decision-making process, and that it is essential that States establish a process that ensures effective Local government participation.

- The proposed rule does not discuss the role of Indian Tribes in the licensing process. The Council believes that Indian Tribes should be provided equivalent rights and privileges as are the States in the process of siting and licensing high level waste repositories. Provision must be made in the rule for appropriate Tribal requests.

- The proposed rule should recognize the obligation of States to establish a process which will enable Local governments to participate in the licensing process.

Under the proposed 60.63, the authority to grant or deny such a request then resides exclusively with the Director of the Office of Nuclear Material Safety and Safeguards, with no apparent provision for appeal.

- In the event that the Director, NMSS, does not approve all or any part of a State or Tribal proposal for participation, and the disagreement between the Director and a State or Tribe persists despite good faith consultation, an appeal to the Commission itself should be made available explicitly in the final rule.

The roles of State/Local/Tribal government can be strengthened and clarified in the following ways:

- States/Tribes should be given clearly the right to participate in the licensing process, including hearings, in two ways: first, as a reviewer with NRC of the materials received, with the right to question witnesses; and second, as a party in the proceedings that may pursue a particular view in the matters under review.

- Provisions for the participation of directly affected States/Tribes or interested States/Tribes should be explicitly set forth. Both host and affected States/Tribes may be involved with evaluations of a specific site, ranging from actual waste containment to transportation and socio-economic impacts. Interested States/Tribes may be more concerned with development and application of regulations, procedures, and national policy.

NRC's provisions for providing staff or funding to these different groups to participate in the review should be delineated in the proposed rule, with full appreciation that these funds may be used either to generate new data or to reinterpret existing data.

- Additional examples of ways that States/Tribes might propose to participate and that NRC is likely to view favorably would be useful. Several additional items were proposed in an NRC summary filed with the State Planning Council on May 15, 1980; and numerous suggestions worthy of inclusion appear on pages 19 and 20 of NUREG-0539. The tone of the proposed rule is inconsistent with these documents, being less positive and unclear with regard to State/Local/Tribal participation.

Public Hearings Will Be Held, and Appropriate Procedures to Assure Effective Public Participation

We note that NRC expects to hold a public hearing at the time of its consideration of DOE's request for construction authorization and again before issuing a license to receive and possess waste. However, the proposed rule does not state that hearings will be held. Indeed, the conforming amendment to Part 2.105 suggests that there might not be a hearing.

- We urge that in its final rule, the NRC clearly state that hearings will be held and indicate the nature of the procedures to be followed in such hearings to assure effective public participation.

Public Meetings on the Site Characterization Plan

After a candidate site has been identified which apparently warrants detailed further examination, a document called the site characterization plan will be prepared by DOE to report how the specific site was identified, summarize what is known about it, and give a full description of proposed further studies at the site preferred for detailed characterization. It is not clear that an environmental impact statement (EIS) will be prepared by DOE with regard to the activities proposed to be carried out under the terms of the site characterization plan that is to be submitted to NRC in the pre-formal stage described by Sec. 60.11(a) of 10 CFR 60, but if a DOE EIS is prepared, an opportunity for public comment must be afforded, which likely should include a public meeting. Sec. 60.11(b)-(f) proposes that on receipt of DOE's site characterization plan, NRC immediately will prepare a staff analysis of that plan, and hold a public meeting to review comments on its staff analysis. After NRC's public meeting, the Director, NMSS, will prepare a final site characterization analysis which Sec. 60.11(f) states DOE should consider in its final EIS. Two public meetings apparently would be held within about 6 months, and site characterization activity will be deferred to some extent during this period.

Public comments on environmental assessments and EIS's and NRC's staff analysis of DOE's plans are expected to be valuable to elected officials in making their necessary decisions, but some duplication seems indicated in the procedures described above. No binding DOE or NRC decisions seem to arise from the public meeting held by either agency. If, for example, DOE draft documents could be supplied to NRC in a timely way, the two public meetings might be combined in some manner, reducing public confusion and focusing public attention on the level of understanding of technical and institutional issues at one time, and on immediate steps necessary to acquire the understanding required to assure public credibility in the program. On the other hand, reducing the number of hearings could be perceived as a narrowing of public access. It may also be confusing to expect the public to respond to two documents produced by separate Federal agencies in the context of the same public hearing. The scope of the NRC and DOE documents will differ, and each agency's treatment of site characterization issues may reflect substantive differences of approach based on one agency's responsibility for regulation and the others' responsibility for implementation. Each agency needs public input to complete its own process and a separation in time between hearings would enable the public to digest the substance of each approach.

Given these alternative considerations, the Council seeks guidance on the following recommendation:

- The State Planning Council suggests that NRC consider whether its public meeting on the site characterization plan could be combined with DOE's in some manner.

Clarification of Environmental Impact Statement Procedures and Contents

There is confusion about when, in the site characterization planning and licensing process, environmental impact statements will be prepared and who will prepare and defend them, and what they must contain. To our knowledge, DOE may prepare an EIS with regard to activities performed under a site characterization plan. The proposed 10 CFR 60 indicates that an EIS is to be prepared by NRC in connection with issuing a construction authorization or operating license.

Without trying to structure DOE's program, NRC must recognize that elected officials need to be able to clearly discern progressive increases in knowledge at each stage of development, and must have a basis for a corresponding increase in their confidence that public health and safety is not going to be threatened by continuance of the program. Guidance that affords a basis for actions by elected officials is needed.

- Indications from NRC of which criteria or data gaps are to be fulfilled or resolved at various stages of the site validation effort would be especially helpful in the form of an NRC policy statement.

Other reasons for making it more clear what must be in the EIS's, whoever submits them, can be offered. It is important that Congress, OMB, and DOE all know what work is the least that must be done for acceptable proposals to NRC. In contrast, giving DOE permission to expand its activities into whatever areas of work it deems necessary or desirable at any time seems to favor more of the "sunk-in" momentum that elected officials fear and find hard to accept.

The Stepwise Approach to Repository Operations

We note that Parts 60.43 and 60.44 are permissive with respect to such matters as instrumentation and monitoring of all or part of the repository in the early years of operation, and moving gradually and in a stepwise manner toward full-scale repository operations. However, the proposed rule does not explicitly describe what actions the NRC expects that DOE would normally be expected to take in these areas.

- It is the Council's view that provisions for adequate instrumentation and monitoring before proceeding to full operations in a stepwise manner are essential to ensure protection of the public health and safety and to provide data needed for eventual operational decisions and decommissioning. We would urge that the final rule be more specific with respect to what NRC will require DOE to do in these areas.

Site Intercomparison

At its meeting of June 4, 1980, the Council endorsed the President's policy of an expanded site identification process for the selection of a permanent high level waste repository. We are pleased to find that the proposed 10 CFR Part 60 is generally consistent with this philosophy.

However, we are struck by the absence within the text of proposed 10 CFR Part 60 of any explicit reference to the desirability of characterizing a number of sites in a variety of geologic environments and relying on diverse media and of making an intercomparison among sites prior to choice, matters upon which the State Planning Council has considered and passed supporting resolutions. The only mention of this matter in the proposed rule itself is a footnote to the conforming amendment to 10 CFR Part 51.40. The implicit NRC determination that 3 candidate sites in 2 media will suffice to address both NEPA and NRC concerns for public health and safety, seems inadequate to the State Planning Council.

- The Council believes that the radioactive waste management program should be technically conservative, with a requirement for a broad hydrogeologic program including investigation and comparison of a number of sites, and that this important matter should be addressed fully and explicitly.
- The intercomparison should require 4 or 5 sites in a variety of geologic environments and relying on diverse host media consistent with recommendations of the Interagency Review Group. As a minimum, the rule should state explicitly that at least 3 sites are required to be considered, and that it is anticipated that other high quality sites could be found.
- The rules should specify that the alternatives considered are high quality and among the best that could be found and were identified through a thorough screening process involving published criteria and, where appropriate, State/Local/Tribal participation.

APPENDIX D

LOW LEVEL RADIOACTIVE WASTE POLICY ACT of 1980

Public Law 96-573
96th Congress

An Act

To set forth a Federal policy for the disposal of low-level radioactive wastes, and for other purposes.

Dec. 22, 1980
[S. 2189]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Low-Level Radioactive Waste Policy Act.

SHORT TITLE

SECTION 1. This Act may be cited as the "Low-Level Radioactive Waste Policy Act".

42 USC 2021b note.

DEFINITIONS

SEC. 2. As used in this Act—

42 USC 2021b.

(1) The term "disposal" means the isolation of low-level radioactive waste pursuant to requirements established by the Nuclear Regulatory Commission under applicable laws.

(2) The term "low-level radioactive waste" means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in section 11 e. (2) of the Atomic Energy Act of 1954.

(3) The term "State" means any State of the United States, the District of Columbia, and, subject to the provisions of Public Law 96-205, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States.

(4) For purposes of this Act the term "atomic energy defense activities of the Secretary" includes those activities and facilities of the Department of Energy carrying out the function of—

(i) Naval reactors development and propulsion,

(ii) weapons activities, verification and control technology,

(iii) defense materials production,

(iv) inertial confinement fusion,

(v) defense waste management, and

(vi) defense nuclear materials security and safeguards (all as included in the Department of Energy appropriations account in any fiscal year for atomic energy defense activities).

GENERAL PROVISIONS

SEC. 3. (a) Compacts established under this Act or actions taken under such compacts shall not be applicable to the transportation, management, or disposal of low-level radioactive waste from atomic energy defense activities of the Secretary or Federal research and development activities.

42 USC 2021c.

(b) Any facility established or operated exclusively for the disposal of low-level radioactive waste produced by atomic energy defense activities of the Secretary or Federal research and development activities shall not be subject to compacts established under this Act or actions taken under such compacts.

LOW-LEVEL RADIOACTIVE WASTE DISPOSAL

State compacts regarding regional facilities.
42 USC 2021d.

Sec. 4. (a)(1) It is the policy of the Federal Government that—

(A) each State is responsible for providing for the availability of capacity either within or outside the State for the disposal of low-level radioactive waste generated within its borders except for waste generated as a result of defense activities of the Secretary or Federal research and development activities; and

(B) low-level radioactive waste can be most safely and efficiently managed on a regional basis.

(2)(A) To carry out the policy set forth in paragraph (1), the States may enter into such compacts as may be necessary to provide for the establishment and operation of regional disposal facilities for low-level radioactive waste.

Congressional consent.

(B) A compact entered into under subparagraph (A) shall not take effect until the Congress has by law consented to the compact. Each such compact shall provide that every 5 years after the compact has taken effect the Congress may by law withdraw its consent. After January 1, 1986, any such compact may restrict the use of the regional disposal facilities under the compact to the disposal of low-l[illegible]oactive waste generated within the region.

Report to Congress and States.

(b)(1) In order to assist the States in carrying out the policy set forth in subsection (a)(1), the Secretary shall prepare and submit to Congress and to each of the States within 120 days after the date of the enactment of this Act a report which—

(A) defines the disposal capacity needed for present and future low-level radioactive waste on a regional basis;

(B) defines the status of all commercial low-level radioactive waste disposal sites and includes an evaluation of the license status of each such site, the state of operation of each site, including operating history, an analysis of the adequacy of disposal technology employed at each site to contain low-level radioactive wastes for their hazardous lifetimes, and such recommendations as the Secretary considers appropriate to assure protection of the public health and safety from wastes transported to such sites;

(C) evaluates the transportation requirements on a regional basis and in comparison with performance of present transportation practices for the shipment of low-level radioactive wastes, including an inventory of types and quantities of low-level wastes, and evaluation of shipment requirements for each type of waste and an evaluation of the ability of generators, shippers, and carriers to meet such requirements; and

(D) evaluates the capability of the low-level radioactive waste disposal facilities owned and operated by the Department of Energy to provide interim storage for commercially generated low-level waste and estimates the costs associated with such interim storage.

(2) In carrying out this subsection, the Secretary shall consult with the Governors of the States, the Nuclear Regulatory Commission, the Environmental Protection Agency, the United States Geological Survey, and the Secretary of Transportation, and such other agencies and departments as he finds appropriate.

Approved December 22, 1980.

LEGISLATIVE HISTORY:

SENATE REPORT No. 96-548 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 126 (1980):
July 28-30, considered and passed Senate.
Dec. 3, H.R. 8378 considered and passed House; passage vacated and S. 2189, amended, passed in lieu.
Dec. 13, Senate agreed to the House amendment with amendments; House agreed to Senate amendments.

APPENDIX E
LETTER TO THE PRESIDENT ON NATIONAL PLANNING
(January 13, 1981)

STATE PLANNING COUNCIL
ON
RADIOACTIVE WASTE MANAGEMENT

RICHARD W. RILEY
Chairman

1900 L STREET, NW
SUITE 605
WASHINGTON, DC 20036
(202) 785-2901

January 13, 1981

President Jimmy Carter
The White House
Washington, D.C. 20500

Dear Mr. President:

One element of the mandate for the State Planning Council from your Executive Order of February 12, 1980, is to review the development of comprehensive nuclear waste management plans and to provide recommendations to ensure that these plans adequately address the needs of the State and Local areas affected. The Department of Energy is in the process of coordinating the preparation of a detailed draft National Plan for Radioactive Waste Management. The Council recently authorized a review of a working draft of the National Plan by an independent task force representing governmental, industrial, environmental, and citizen points of view and utilizing criteria approved by the Council. The Council's criteria and the report of the task force are attached in an appendix to this letter.

The Council believes that several generic issues have been raised and need to be addressed in any national planning effort on radioactive waste management. The Council's recommendations are as follows:

1. National planning for radioactive waste management should avoid abrupt changes in direction to prevent further deterioration of program credibility and loss of time.

   Many of the policy recommendations in your Presidential statement of February 12, 1980, address fundamental issues and can be initial steps toward bipartisan agreement. Further change is not precluded in a program that must span decades, but this should be done through an evolutionary process. Additional policy guidance, and particularly its sustained implementation, will be needed from every Administration in order to achieve an integrated Federal program, to build a full cooperative intergovernmental partnership, and to design an effective public participation program. Moreover, the primary emphasis of the national waste management effort should continue to be a technically conservative, step-by-step process for the development of permanent repositories based on the systematic investigation and comparison of a number of potential sites in several geologic environments. Attempts to create a fast-track approach could make siting a geologic repository more contentious, and therefore, less expeditious.

2. The national planning effort must be based on a cooperative and continuing intergovernmental (Federal, State and Tribal) partnership, which requires that States and Tribes are able to affect decisions and plans before their official release for public comment.

The State Planning Council has determined that a Federal/State/Tribal partnership, including the implementation of a consultation and concurrence process, is crucial to the resolution of all radioactive waste disposal problems. Preparing a National Plan is a stepwise, expanding and iterative process. The first requirement is interagency coordination to produce an integrated "Federal Plan." Efforts to include input from the State Planning Council, and possibly even from key Congressional Committees, helps to improve the product from this first step. Then must come the effort to attain intergovernmental coordination and participation and, thereby, to produce the "proposed National Plan." Finally, public participation must be incorporated to produce a "true National Plan." Afterwards, the Plan must be revised and modified with State and public involvement on a continuing basis. Full cooperation and coordination with the appropriate institutions and interests at each step in the process makes each subsequent broadened involvement more likely to be efficient and constructive.

3. Public participation in waste management planning and programs is sufficiently important to deserve the same quality of thought, commitment and implementation as technical programs. This requires: a clear definition of goals and objectives; a detailed framework of operating policies, procedures and/or regulations; and management cognizance, control, evaluation and improvement.

   It must be clear to the various segments of the public what affects them in the particular progra on which their participation is being sought and what is the impact that their involvement can be expected to have.

4. The National Plan must identify more clearly and candidly key technical, institutional and policy issues and the strategies, experiments, and activities for resolving them.

   The public, the Congress, and the States will have more confidence in a proposed National Plan on waste management if they perceive that well-known, unresolved issues are being addressed and that the past is considered not as a liability to be ignored, but as an asset to be used as a learning experience. Describing candidly the problems and the successes to date helps to explain the basis for where we are now and to appraise how new arrangements can overcome potential difficulties.

5. The National Plan process, authorized in the Executive Order of February 12, 1980, should go forward in order to provide continuity and integration to the overall national waste management effort.

   The exercise to prepare a proposed National Plan has helped to identify interagency coordination problems and other outstanding issues, has begun to incorporate states and the public in the planning process, and has laid the groundwork for building broad agreement on the status, problems, and direction of the national radioactive waste management effort.

Pursuant to your Executive Order, the State Planning Council will be issuing in March its Interim Report, covering all of its activities and recommendations to date. If the Council can assist you or your staff in any way, please do not hesitate to contact me.

Sincerely,

Richard W Riley

Richard W. Riley
Chairman

cc: Honorable Charles W. Duncan
Secretary of Energy

Attachment: State Planning Council
Task Force Review of DOE's National Plan

APPENDIX F

STATEMENT OF PRINCIPLES ON FEDERAL INTERIM STORAGE

STATE PLANNING COUNCIL ON RADIOACTIVE WASTE MANAGEMENT

STATEMENT OF PRINCIPLES ON FEDERAL INTERIM STORAGE OF SPENT FUEL

1. Prior to the ultimate disposition of commercial spent fuel, utilities should be primarily responsible for its interim storage.

2. In the event a Federal role in providing interim storage for spent fuel is established, it should be limited to existing facilities (either on-site or away-from-reactor), with any additional required storage capacity to be constructed on the site of a reactor.

3. In the event a Federal role in providing away-from-reactor (AFR) interim storage for spent fuel is established, any transfer of spent fuel to the AFR facility would be limited to fuel from currently existing reactors, after full utilization of on-site storage. It is understood by the Council that construction of future reactors will compensate for any needed interim storage capacity.

4. If a Federal role in providing interim storage for spent fuel is established, the AFR facilities should be established on a regional basis.

5. If a Federal role in providing interim storage for spent fuel is established, once a permanent storage or disposal facility is in operation, the stored fuel in an AFR interim storage facility should be systematically transferred to the permanent disposal facility and the interim facility should be promptly decontaminated and decommissioned. This principle should be embodied in the agreement betwen the host state and DOE.

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Observers

Nuclear Regulatory Commission
(Jack Martin)

Special Advisors

Senator Jerome Joyce
Illinois
(Richard Durbin)

Representative William Wilkerson
Mississippi
(John Green)

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* Resigned as governor on December 31, 1980.
** Her term expired January of 1981.

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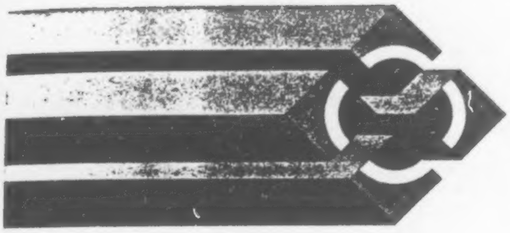
State Planning Council
on
Radioactive Waste
Management



Technical Paper

High-Level Radioactive Waste Management

An Intergovernmental Agreement To Cover Federal Activities Within A State

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PREFACE

The recent expansion of the national screening program for potential high-level waste repository sites has increased the number of states involved in negotiations with the Department of Energy (DOE). The Department of Energy is encouraging these states and tribes to enter into written agreements to define their participation in DOE's site development activities.

Agreements are intended to:

- establish groundrules for state involvement in Federal decision making;
- demonstrate publicly that procedures are in place for ensuring proper review of the health, safety, environmental, and socioeconomic impacts of the project;
- provide a mechanism for ensuring that technical evaluations are carried out; and
- establish a means to resolve conflicts.

The purpose of this document is to assist the states and DOE in developing workable agreements which are appropriate to the unique circumstances of each state and the DOE program in that state. The provisions outlined span the early phases of site exploration and development up to and through the site characterization process.

This document was prepared by John H. Gervers with the assistance of Commissioner Emilio E. Varanini of the California Energy Commission; Dr. Ted Greenwood of the Massachusetts Institute of Technology; Mr. John Green of the Energy and Transportation Board, State of Mississippi; Dr. George Goldstein, Secretary of Health and Environment, State of New Mexico; and Dr. Colin Heath and Mr. Critz George of the Office of Waste Isolation, U.S. Department of Energy.

John J. Stucker
Executive Director

Edward L. Helminski
Deputy Director
Senior Policy Analyst

ELEMENTS OF THE MODEL AGREEMENT

The following is an outline of the Model Agreement.

PREAMBLE

- Identification of parties to the Agreement.
- DOE and state recognition of a partnership process involving state participation in decision making.
- Recognition of broad responsibilities of the parties regarding repository siting.
- Acknowledgement of legislative mandates for agreements, where applicable.

ARTICLE I - PURPOSE AND INTENT

- General purposes of the Agreement.

ARTICLE II - DEFINITIONS

- Definition of technical terms.

ARTICLE III - DEPARTMENT OF ENERGY PROGRAM

- Scope and purpose of planned DOE activities.

ARTICLE IV - STATE AND FEDERAL ORGANIZATION

- Identification of responsible state and Federal agencies.
- Establishment of state review mechanism.
- Establishment of Federal interagency coordination mechanism.

ARTICLE V - STATE PARTICIPATION PROCEDURES

- State's right to review, comment, and make recommendations on DOE plans, programs, or activities.
- DOE commitment to consult with state on forthcoming decisions and to resolve the states concerns.

ARTICLE VI - INFORMATION EXCHANGE

- DOE commitment to provide necessary information for the state's independent review.

- State commitment to provide available technical or socioeconomic data for the DOE site evaluation process.

ARTICLE VII- STATUS OF TECHNOLOGY DEVELOPMENT

- DOE commitment to keep the state fully informed of the bases for technical conclusions.
- Identification of generic criteria for the determination of site suitability.

ARTICLE VIII - DOE WORK PLAN

- Outline of proposed DOE activities.
- Time frames for state review and comment.

ARTICLE IX - CONFLICT RESOLUTION

- Procedures and time frames for resolving conflicts.
- Procedures for establishing third party review or mediation.
- Status of work program in the absence of agreement.

ARTICLE X - LOCAL GOVERNMENT ROLE

- Procedures for involving local governments in state and Federal decisions on waste repository siting.

ARTICLE XI - PUBLIC PARTICIPATION

- Procedures for public access to information and public involvement in decisions.

ARTICLE XII - TECHNICAL AND FINANCIAL ASSISTANCE

- Provision of technical assistance to states.
- Provision of funding for state participation and for socioeconomic impacts.

ARTICLE XIII - LIABILITY

- Liability for accidents.

ARTICLE XIV - SCOPE OF AGREEMENT

- Application to other laws, regulations, or permitting authority.
- Effects of agreement on right to judicial review.

ARTICLE XV - MODIFICATIONS

- Provisions for subsequent modification of the agreement.

APPENDIX A - PHASES OF REPOSITORY DEVELOPMENT

APPENDIX B - WORKING AGREEMENT

- Details of DOE work plan, and time frames for review, comment, and response to comments.

PREAMBLE

[The Preamble establishes the general context and tone of the Agreement. It identifies the parties to the Agreement and outlines the broad responsibilities of each. It may contain references to statutory authority for an agreement or a series of agreements. It may also include statements related to the general need for a radioactive waste program and for cooperation between states and the Federal Government in carrying it out. Some examples of introductory language are given below.]

(Parties to the Agreement)

A. The state of _____ (hereinafter the state) and the United States Department of Energy (hereinafter DOE) desire to enter an agreement to guide the conduct of the National Waste Terminal Storage Program in the state of _____.

(Commitment to partnership)

B. The parties acknowledge the need for a Federal-state partnership in achieving solutions to radioactive waste disposal problems and consider that state participation in the decision-making process will enhance public confidence in the waste management program and facilitate the conduct of a technically valid site development process in the state of _______.

(Responsibilities of parties)

C. The parties recognize that DOE is responsible for developing facilities for safe disposal of high-level radioactive wastes and transuranic wastes arising from the commercial use of nuclear power and from the conduct of the Nation's defense programs.

D. The parties recognize that the state has the right to protect the public health, safety, and welfare of its citizens, including the environmental and socioeconomic aspects of the handling, transportation, storage, and disposal of radioactive waste in the state.

(Statutory authority)

E. The ___ Act of 19__, Number _____, Laws of _____ provides that the state shall enter into a written agreement or series of written agreements with DOE concerning the process of state participation in the evaluation, exploration, and characterization of potential sites for the long-term, permanent disposal or short-term, retrievable disposal of high-level and transuranic wastes in the state.

F. It is agreed between the U. S. Department of Energy, represented by the Secretary of Energy (hereafter the Secretary) (or other responsible official), and the state of ___ represented by the Governor (or other responsible official) that the principles outlined in the following Agreement are binding to the extent permitted by state and Federal laws.

ARTICLE I. PURPOSE AND INTENT

[This Article establishes the purpose of the Agreement and the intent of the parties to act in good faith in carrying it out. Some states may wish to indicate that participation in the Agreement does not imply endorsement of the program or bind it to accepting the outcome of the site selection process. Sample language is provided.]

(Purpose of Agreement)

A. The purpose of this Agreement is to set forth a process to ensure that the state's concerns for public health and safety, environmental and socioeconomic impacts are adequately addressed and satisfactorily resolved.

(Contents of Agreement)

B. This Agreement identifies the representatives and responsibilities of the parties, the planned activities of DOE during the ______ phase; the means to be taken by DOE to inform the state of the basis for technical conclusions; a work plan outlining time frames for consultation, review, comment and resolution of comments; a mechanism for resolving conflicts; provisions for DOE assistance in obtaining funding for state policy and technical reviews and socioeconomic impacts; and procedures for public participation in decision making.

(Intent of the parties)

C. This Agreement affirms the intent of the Secretary or his designee to consult with appropriate state officials on all decisions directly pertaining to the development of a radioactive waste repository site in the state of ____, and to consider and make good faith efforts to resolve any state concerns with regard to the development of such a site. It also affirms the intent of the Governor and responsible state officials to express any such concerns in a timely manner and to make all reasonable efforts to cooperate with DOE in resolving such concerns without undue delay to the repository siting program.

D. Signing this Agreement or participating in the evaluation process does not constitute endorsement or approval by the state of any specific repository siting activity, nor does it imply acquiescence in, or acceptance of, any decision to construct a repository in the state.

ARTICLE II - DEFINITIONS

[This Article defines the technical terms used in the Agreement. In addition to the sample definitions given below, some states may wish to define the institutional terms used to describe their review mechanism (e.g., task force, committee, state review board) and any corresponding group on the Federal side. It may also be useful to define the principal phases of site development (e.g., site identification, site characterization, site suitability, test and evaluation facility, site selection). Examples of such definitions may be found in Appendix A. In addition, a public health, safety, and welfare definition consistent with normal usage of this term in state law could be included in this Article.]

For purposes of this Agreement:

A. "High-level waste" means spent reactor fuel or the solidified products of the first-cycle solvent extraction or similiar process by means of which uranium and plutonium are recovered from irradiated reactor fuel;

B. "Transuranic waste" or "TRU waste" means waste, other than high-level waste or spent reactor fuel, containing alpha emitting transuranic elements (including Uranium-233) with radioactive half-lives greater than one year, in excess of 10 nanocuries per gram of waste (or equivalent standard defined by Federal regulation);

C. The term "Working Agreement" means the document, incorporated herein by reference as Appendix B, which elaborates on the details of this Agreement and shall be further developed pursuant to this Agreement.

D. The term (task force, committee, state review board) means the group of state executive, legislative or other advisors appointed by the governor (the state legislature) for the purpose of evaluating repository development programs.

E. "Consultation" means participation in and the timely sharing of all information by the parties concerning the development of a permanent repository for the disposal of high-level waste in the state.

ARTICLE III - DEPARTMENT OF ENERGY PROGRAM

[DOE should supply this language on the scope of its program. Although the general outline of the program will probably not be negotiable, certain details may be. States may wish to sign a single agreement covering all phases of repository siting (a multi-phase agreement) or a series of more limited agreements based on single phases. The examples given below assume that three separate agreements might be signed to cover site identification, site suitability and a test and evaluation facility.]

(For an agreement covering the site identification phases)

DOE is undertaking evaluations of the _____ area of the state of _____, as part of the National Waste Terminal Storage Program (NWTS). Having completed the regional studies phase of site identification, DOE proposes to carry out further site evaluation work to determine whether a location in the ______ area would be suitable for detailed site characterization. The area studies phase will include preliminary boring to obtain geologic, hydrologic and mineral resource data to identify possible locations for additional study. The location studies phase will involve extended boring at a smaller number of locations to determine the suitability of sites for more detailed characterization. During both of these phases DOE will proceed with generic studies to demonstrate the validity of technical hypotheses and conclusions.

(For an agreement covering the site suitability phase)

Having completed the location studies phase of site identification DOE proposes to carry out detailed site characterization work (including the sinking of an exploratory shaft) for the purpose of site and preliminary design validation. DOE will seek to acquire the necessary property interests (enter a cooperative agreement with the Bureau of Land Management United States Department of the Interior) to protect the site against alternative uses which might invalidate its potential as a repository. The site characterization work will determine whether a site qualifies for development of a test and evaluation facility, or for extended protection until the United States Nuclear Regulatory Commission has considered an application for a license to construct a full-scale repository. In the event that detailed site characterization work fails to identify a suitable site, DOE shall restore the land surface and release the land for other uses ~~(or to its~~ original owner).

(For an agreement covering a test and evaluation facility)

Having completed the site suitability phase, DOE proposes to construct and operate a test and evaluation facility which shall contain up to ______ containers of high-level waste for an evaluation period of ______ years. After this designated period of operation, DOE activities at the site will cease and the waste will be removed unless the state and DOE have entered into an agreement on the future use of the facility prior to the expiration of this Agreement.

ARTICLE IV - STATE AND FEDERAL ORGANIZATION

[The purpose of this Article is to identify representatives, establish contact points, and describe the state review mechanism and DOE procedures for interagency coordination. The degree of state and Federal organization depends on the phase of activity covered by the Agreement. At the early phases, it may only be necessary to establish contact points for consultation. However, once the site evaluation program has entered the area studies phase the state and DOE may choose to establish formal review mechanisms. One way to structure a state review mechanism would be to establish a task force, committee, or review board with such functions as the state believes are necessary to carry out an effective review. The membership of the review body could include state agency officials, representatives of the legislature and/or the attorney general's office, scientists, academics, and members of the general public.

The Department of Energy, as lead agency, is responsible for establishing coordination mechanisms with other Federal agencies that have jurisdiction over activities directly related to the DOE repository.

We suggest two alternatives below which are keyed to the "early" phases and "later" phases of site development and contain typical functions and composition for review groups.]

Alternative #1 (No structured review mechanism)

(Points of contact)

A. The (state official) is designated by the governor as the principal representative of the state for maintaining liaison with DOE and for the consultation and state participation process.

B. The (DOE official) is designated by the Secretary as the principal representative of DOE for maintaining liaison with the state and for the state consultation and participation process.

C. The principal representatives may designate appropriate individuals or groups to conduct day-to-day activities on their behalf.

Alternative #2 (structured review mechanism)

(Establishment of state review group)

A. The state has established by Executive Order (by legislation) a (task force, committee, review board) to represent the state in its relations with DOE on the siting of radioactive waste repositories.

(Functions of review group)

B. The functions of the (task force, committee, review board) include: representing the state in consultations and negotiations with the Department of Energy; coordination of the state's review of DOE actions; making policy recommendations to the governor (the state legislature) on any matter pertaining to the planning or siting of a repository in the state; and such other activities as shall contribute to effective state participation in decisions concerning the transportation, storage, or disposal of high-level wastes or transuranic wastes in the state.

(Membership of review group)

C. The (task force, committee, review board) includes representatives of (state agencies who will advise the governor and consult with the state legislature, the attorney general's office, local government officials, affected Indian tribes, neighboring states, and the public, etc.). Members will serve staggered terms not to exceed __ years and shall carry out the functions outlined in paragraph B above.

(Establishment of Federal review mechanism)

D. DOE, as lead agency, has established an interagency mechanism to coordinate Federal agency actions concerning the planning, siting, and development of radioactive waste repositories. DOE shall be responsible for assisting the state in bringing its concerns to the attention of other agencies and urging them to resolve such concerns in a timely manner.

ARTICLE V - STATE PARTICIPATION PROCEDURES

[The purpose of this Article is to define the state participation process and establish the rights and obligations of the parties].

A. The parties understand the state participation process to involve consultation, negotiation, and incremental decision making, including a procedure for the resolution of conflicts, as defined in this Article and elsewhere in this Agreement.

B. DOE recognizes the states' right to participate in the planning process and to review, comment, and make recommendations on DOE plans, programs, or activities in the state during all phases of site identification and qualification. The DOE further acknowledges the state's right to be consulted prior to major decisions by DOE and to express concerns regarding the impacts of these decisions on the public health, safety, or welfare.

C. DOE shall keep the (designated state body or official) currently and fully advised relative to its activities in accordance with this Agreement so that the state may conduct timely reviews of the public health, safety, environmental, and socioeconomic effects of such activities.

D. The state shall establish procedures for the timely review of DOE documentation and decisions and for the transmittal of requested information that is in the state's possession.

E. DOE and the state agree to work together to resolve the state's concerns regarding the planning or implementation of DOE site development activities in the state. Where such efforts are not sufficient to resolve these concerns, the parties will submit to the conflict resolution procedures in Article IX of this Agreement.

F. In order for the state to make the independent reviews on public health and safety under this Article, the state shall have the right to conduct reasonable independent monitoring of on-site activities; provided, however, that such monitoring shall not unreasonably interfere with on-site activities.

ARTICLE VI - INFORMATION EXCHANGE

[This article defines the obligations of the parties to share information on the repository development program. It structures information exchange as a two-way process involving state cooperation with DOE in its site evaluation program as well as DOE cooperation with the state in its independent review. The suggested language below is intended to make clear that information exchange includes the sharing of draft technical and policy documents as well as published documents. Information exchange with local governments and the general public is covered in Articles X and XI.]

A. DOE shall provide to the (designated state body or official) in a timely manner all draft and final technical reports, studies, and pertinent policy documents necessary for the state to carry out its independent review of DOE program activities.

B. Where necessary, the parties undertake to comply with Federal or state rules for the handling of draft documents which have not been cleared for public dissemination. The parties agree that no public statements will be made or documents released until the other party has been formally notified at least ___ days in advance.

C. The types of data, reports, and other material DOE shall furnish the state include, but are not limited to, draft and final environmental impact assessments and statements; technical reports and program plans; administrative and technical progress reports; construction and engineering design documents; requests for proposals and contracts; and land withdrawal proposals directly related to DOE activities in the state. DOE shall maintain a library of such studies in the state for the duration of the project.

D. The state agrees to provide DOE information within its possession that directly relates to DOE activities within the state, including studies and analyses of the geology, physiography, demography, hydrology, ecology, and economy of any area of interest.

E. Upon request by the state, DOE agrees to hold detailed scientific briefings and seminars by DOE personnel or contractors or other Federal agencies for the purpose of providing information to the state on current or proposed DOE repository development activities.

ARTICLE VII - STATUS OF TECHNOLOGY DEVELOPMENT

[The purpose of this Article is to ensure that the state and the general public are kept fully informed on the technology of radioactive waste disposal. The Article places the burden on DOE to inform the state of the physical sciences and engineering required to safely dispose of high-level radioactive wastes at a site in the state. It provides for periodic review of the "state of the art" of waste disposal with opportunities for state and public input at specified points.]

A. DOE undertakes to take all reasonable steps to inform the state and the general public of the physical sciences and engineering needed to isolate high-level radioactive wastes from the human environment, and to demonstrate the basis for its confidence that such wastes can be disposed of safely at a site within the state of ___ .

B. DOE agrees to provide to the state the criteria and standards which define the necessary and sufficient conditions required of the physical and engineered environment in the repository as well as other exclusionary criteria.

C. DOE agrees to provide to the state the results of scientific peer review of site characterization technical work, identify the technical factors for which a significant degree of uncertainty remains, and provide an assessment of overall risk to public health and safety.

D. DOE agrees to submit a detailed report on the status of technology development to the governor for public review and comment (as agreed to in the work plan), (annually), (prior to any major DOE decision affecting the status of the site under investigation).

E. The reports in paragraph C above shall include, but not be limited to, a description of generic data, standards, analyses, and experiments, including studies of hydrology, seismic and tectonic stability, waste form, waste-rock interaction, sorption (retention) phenomena, and rock mechanics.

ARTICLE VIII - DOE WORK PLAN

[This Article outlines DOE work plan for activities in the state. Although consultation must be a continuous process throughout site development, there will be certain points along the way when DOE will take actions or publish documentation which the state may wish to formally review. This Article outlines in a sequential manner DOE work plans and time frames for notification, comment, and response.]

Alternative #1 (single phase agreement for the location studies phase)

A. DOE shall consult with the state as the project progresses through the location studies phase. Such consultation shall be on a regular, ongoing basis to facilitate an orderly process of state review and evaluation.

B. The following DOE actions shall be completed prior to a decision to commence detailed site characterization, unless otherwise agreed to by the parties.

- o geologic location characterization report
- o environmental location characterization report
- o location summary and site recommendation report
- o report on status of technology development (Article VII, paragraph D).

C. Any state comments shall be provided to the (designated DOE official) within ___ calendar days after notification of planned DOE activities or receipt of documentation from DOE. DOE shall respond to the state comments within ___ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter to resolve any concerns or objections raised by the state before there is recourse to the procedure set forth in Article IX of this Agreement.

D. DOE shall give prior written notice to the state of its intention to commence detailed site characterization and shall confirm in writing that the actions outlined in paragraph B have been satisfactorily completed.

Alternative #2 (multi-phase agreement)

A. DOE shall consult with the state as the project progresses through the phases of site development covered by this Agreement. Such consultation shall be on a regular, ongoing basis to facilitate an orderly process of state review and evaluation.

B. The parties have negotiated a Working Agreement, containing a work plan which identifies the phases of site development, including significant DOE activities, the documents DOE is to submit to the state, the timing for such submissions, the timing for the state to identify public health and safety concerns, and the process to be followed to try to eliminate those concerns before there is recourse to the procedure set forth in Article IX of this Agreement.

C. DOE shall give prior written notice to the state of its intention to commence any new phase of site development and shall certify to the state that prior actions outlined in the work plan, having direct bearing on carrying out the new phase, have been completed.

ARTICLE IX - CONFLICT RESOLUTION

[The purpose of conflict resolution is to commit the parties to resolving policy or technical differences through a mutually acceptable set of procedures. The conflict resolution procedure outlined below recommends that the parties attempt to resolve conflicts at the lowest level of authority, with the option to elevate such disputes to progressively higher levels including the use of mediators or arbitrators. Agreements could also specify bases for objections, as is now being currently proposed by the state of Wisconsin. Two alternatives are presented below].

N.B.: The following alternatives do not reflect the recommendations of the State Planning Council on Radioactive Waste Management that a process of consultation and concurrence be established that would provide the state an opportunity for appeal to, and action by, the President and the Congress. Though both houses passed bills including versions of this process in the last Congress, similar legislation has yet to pass committee in the current Congress. However, if action is taken in this Congress or the next, and a consultation and concurrence process is put into law allowing appeal to the President and the Congress and requiring actions on their part, this section should detail the procedures of the enacted consultation and concurrence process according to the provisions of that law and its attendant regulations.

Alternative #1 (mediation)

(Resolution at lowest levels of authority)

A. The state shall use its best efforts to advise DOE of any concerns as to public health, safety, and welfare within reasonable time frames or as specified in Article VIII (the Working Agreement). The state and DOE shall discuss the state concerns and shall make all reasonable efforts to resolve the matter at the lowest level of authority.

(Invocation of conflict resolution)

B. In the event that actions under Article V of this Agreement do not satisfy the state's concern or concerns as to the public health, safety, and welfare, the (designated state official) and the (designated DOE official) shall meet to discuss the matter in detail. Within ___ calendar days after the conclusion of the discussion, the (designated DOE official) shall advise the (designated state official) in writing what action, if any, is contemplated with respect to the state's particular concern or concerns. If the state is not satisfied by the written determination of the (designated DOE official), the governor shall notify the Secretary in writing within ___ calendar days of receipt of such determination that the state intends to invoke the provisions of this Article and the reasons therefore.

(Status of project pending resolution of state objections)

C. Upon notification to the Secretary under paragraph B of this Article that the state intends to invoke this Article, DOE shall not proceed with any activity directly related to the state's concerns unless specifically authorized in writing by the Secretary and agreed to in writing by the governor.

(Selection of mediators)

D. Within ___ days after notification under Paragraph B of this Article, the designated state official and DOE shall appoint mutually agreed upon and recognized, independent expert(s) in the particular fields involved as mediator(s) between the parties. The mediator(s) may employ experts in the particular field involved and such support staff as shall be necessary to assist them in making a recommendation.

E. The state and DOE shall each submit to the mediator(s) for the record a written or oral statement of their respective positions and the basis therefore within a period of time agreed to by each party at the initiation of this proceeding.

(Recommendation of the mediators)

F. The mediators shall transmit written recommendations along with a copy of the record and transcript to the Secretary and the (designated state and DOE negotiators) within ___ calendar days following receipt and consideration of all written submissions and oral presentations.

G. Within ___ calendar days following receipt of the written recommendations of the mediators and the record and transcript, the state and DOE may submit their own written comments and recommendations to the Secretary which shall be made a part of the record.

(Decision of the Secretary)

H. Within ____ calendar days following receipt of the written recommendations of the conflict resolution hearing officer and the record and transcript, the Secretary shall issue a written decision on the matter before him which shall include the basis in the record for such decision and shall constitute final DOE action on the matter under this Agreement.

I. The parties recognize that final DOE actions may be subject to reexamination by the United States Nuclear Regulatory Commission.

[Rather than establishing a mediation process, a binding arbitration process as is being proposed in Mississippi could be included. This would depend on the Secretary or the governor being willing or able to delegate the authority invested in them to an arbitration panel which makes binding determinations.]

Alternative #2 (arbitration)

Lack of specific agreement between the parties as to technical, social, economic, and institutional issues shall result in the following arbitration process:

(1) Within __ working days of notice to either party in writing, DOE shall appoint one arbitrator and the state shall appoint one arbitrator and those two arbitrators shall select a third individual to form an arbitration panel.

(2) The parties shall present their positions in writing to the arbitration panel within ___ days after the appointment of the panel.

(3) The panel may hear oral presentations and may require such additional written presentations as are needed to make a final determination on the issues.

(4) The panel shall make a final determination within __ days of the last date of the presentation period which shall be binding on both parties.

ARTICLE X - LOCAL GOVERNMENT ROLE

[Local governments that are directly impacted by repository siting proposals should be provided a role in the consultation process with DOE through mechanisms and procedures established by the states. It is expected that the provisions of this Article would reflect accepted intergovernmental procedures in the state.]

A. The parties recognize the right of local governments to be consulted on and to have access to information regarding the transportation, storage, or disposal of radioactive wastes in their communities.

B. The (designated state review body or official) will involve local governments in the state consultation and participation process through membership of local elected officials to represent the views of local communities.

or

The (designated state review body) shall create an advisory board composed of local officials from affected jurisdictions whose function shall be to advise the (designated state review body) on the views of local communities.

ARTICLE XI - PUBLIC PARTICIPATION

[In order to build public confidence in the government decision making process, the Agreement could include provisions for public participation. A general framework for such participation could include release of documentation for public review and comment and time tables for public meetings related to specific DOE actions.]

A. The parties recognize the right of public interest groups and individual citizens to be consulted on and to have access to information regarding the transportation, storage, or disposal of radioactive wastes in their communities.

B. DOE and the state agree to establish procedures for public participation which shall include:

1. Release of documents, studies or reports undertaken by DOE or the state for public review and comment. These shall include at a minimum such documents as draft and final environmental impact statements, preliminary and final safety analysis reports, Title I and Title II design reports.

2. Placement of copies of all such data, reports, or materials in the library or libraries maintained by DOE in the state, pursuant to paragraph C of Article VI of this Agreement.

3. Public hearings, workshops, or meetings by DOE or the state in conjunction with the draft environmental impact statement, the site and preliminary design validation, the test and evaluation facility, and such other activities as shall subsequently be agreed by the parties.

4. Membership for at least one public member on the (designated state review body).

ARTICLE XII - TECHNICAL AND FINANCIAL ASSISTANCE

[Effective state participation requires that technical expertise and funding be available to carry out independent policy, technical and socioeconomic reviews. This Article could specify a general commitment by DOE to assist the state in obtaining funding and expertise, or it could specify existing or planned contractual arrangements for providing such funding and expertise.]

A. The parties recognize that in order for the state to comment and make recommendations under this Agreement it must have adequate technical and financial resources to carry out an independent review of the project. DOE shall assist the state in obtaining the resources necessary for the state to undertake a meaningful independent policy, technical, and socioeconomic review.

B. The (designated state review body or official) shall approve the disbursement of all DOE funds for repository related activities or studies by governmental organizations and institutions of higher learning in the state of ______ and shall be consulted prior to execution of contracts between DOE and the private organization which is to perform work in the state related to the repository program.

C. The parties agree to share (DOE agrees to fund) the cost of establishing and maintaining the conflict resolution process in Article IX of this Agreement.

[If the Agreement is intended to cover a test and evaluation facility, the following provision may be included.]

D. DOE agrees to work with the state to identify the net adverse (if any) impacts related to or arising from the transportation, storage, or disposal of high-level wastes or transuranic wastes in the state, and to make payments, subject to Congressional authorization and appropriation, to the state to distribute to affected jurisdictions for the mitigation of such impacts.

ARTICLE XIII - LIABILITY

[If this agreement is intended to cover phases of repository development which involve the transportation, storage or disposal of radioactive wastes at the site (e.g., for a test and evaluation facility), a provision could be included which establishes DOE responsibility for accidents and for any related costs or damages. If, however, this agreement is intended only to cover DOE site identification and characterization activities, there would be no need for a liability provision.]

DOE agrees to assume responsibility to the extent permitted by law for any costs or damages resulting from accidents involving the transportation, storage, or disposal of high level wastes or transuranic wastes in the state of ____.

or,

DOE agrees to make a determination that the provisions of the Price-Anderson Act shall apply to the transportation, storage, or disposal of high-level wastes or transuranic wastes in the state of _____.

ARTICLE XIV - SCOPE OF AGREEMENT

[This article contains miscellaneous provisions concerning the scope of the Agreement, and the rights of the parties to judicial review of final agency actions under the conflict resolution procedure.]

A. This Agreement does not supersede, limit, modify, relinquish, or waive the authorities, rights, jurisdictions, or responsibilities of state and Federal agencies not party to this Agreement. The parties recognize that such authorities, rights, jurisdictions and responsibilities do not remove a matter from discussion, but may be addressed through the procedures identified in paragraph D of Article IV and, by agreement of the involved parties, in Article IX of this Agreement.

B. Pursuant to paragraph A above, where a state or Federal permit is a prerequisite to any action by DOE (e.g., access roads, site development, or discharge of pollutants), that action shall not be carried out until the appropriate permit has been obtained.

C. The provisions of this Agreement (and the Working Agreement incorporated herein) shall not be construed to limit, modify, relinquish, or waive any right which the state, the U.S. Government or their citizens may have to seek administrative or judicial review of any action by the Secretary, DOE, or the state on any matter relating to any activity conducted in connection with the project pursuant to any applicable regulation, or law of the state or the United States. Nothing in this Article shall confer or be deemed to confer any right to judicial review of any action by the Secretary except as otherwise provided by any applicable regulation, law or constitutional provision of the state or the United States.

ARTICLE XV - MODIFICATIONS

[Modification of the Agreement may be necessary as circumstances change with regard to national or state law, new DOE program proposals, or changes in state or Federal perceptions of the effectiveness or usefulness of existing provisions. This Article could include provisions for modifying the Agreement, or for terminating it. The parties may wish to include a disclaimer that any substantial change in the DOE program requires renegotiation of the Agreement.]

A. The parties to this Agreement recognize that future developments, including but not limited to changes in applicable law, may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions contained herein upon written notice to the other party, setting forth the modification or modifications requested together with the reasons therefore. The other party agrees to consider the requested modification or modifications, to respond to the request in writing, and to enter into negotiations in good faith within ____ days of receipt of the request.

APPENDIX A

PHASES OF REPOSITORY DEVELOPMENT

I. Site Identification

   a. National Screening
   b. Regional Studies
   c. Area Studies
   d. Location Studies
   e. Site Characterization Decision

II. Site Suitability

   a. Detailed Site Characterization
   b. Site Qualification Decision

III. Test and Evaluation Facility

   a. Site Selection
   b. Construction

IV. Repository Site Selection

V. Licensing of Construction

   a. License Application
   b. NRC Licensing Decision

VI. Construction

VII. Licensing of Operations

   a. License Application
   b. NRC Licensing Decision

VIII. Operations

IX. Retrieval Decision

X. Decommissioning Decision

DEFINITIONS

1. "Site identification" means a process of evaluation of potential sites based on progressively more focused studies of regions, areas, and locations leading to a decision to proceed with detailed site characterization.

2. "Site qualification" means a process of detailed site characterization, including the possible sinking of exploratory shafts, leading to a decision that a site is qualified for selection as a repository.

3. "Site selection" is the decision to apply to the U.S. Nuclear Regulatory Commission for a license to construct a repository.

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* Resigned as governor on December 31, 1980
** Her term expired January of 1981

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APPENDIX II

Report Submitted for the Record by Senator J. Bennett Johnston

MONITORED RETRIEVABLE STORAGE OF NUCLEAR WASTE

by R. Philip Hammond*

1.0 STATEMENT OF PURPOSE

Monitored retrievable storage of nuclear wastes has been proposed as an intermediate stage between reactor pool storage and final repository disposal. This report is a brief summary of the available information on the feasibility, cost, advantages and disadvantages such facilities would have as a component of the national waste management program.

The purpose of my investigation was to collect in one place the results of several sources to provide a coherent picture of what a monitored retrievable storage (MRS) facility might look like, how soon it could be built, and how it would function in relation to the rest of the nuclear waste system. Such information should assist in judging whether this new option should be made a part of ongoing plans to complete the nuclear fuel cycle. Although the facts presented here are collected from many sources, all the opinions and interpretations are strictly my own, and do not necessarily represent those of any agency or group.

2.0 BACKGROUND

The original program for waste management called for storing spent fuel at reactors for a few years, reprocessing it, and emplacing the immobilized high-level waste in a deep geological formation, such as salt or granite. Repository plans were complicated by an administrative decision to ban reprocessing for an indefinite time. Disposal of unreprocessed spent fuel would add much more radioactive material to be handled, and necessitate different packaging schemes. Another major impediment to implementing the repository program arose from strong public opposition to site investigations for any of the installations, even in constituencies otherwise favorable to nuclear power.

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This public opposition has two main concerns: (1) The waste, once buried, is out of human control, and the task of proving non-occurrence of future untoward events is nearly impossible; (2) The choice of specific types of geologic formations tends to single out certain states as preferred locations to the exclusion of others. In the long run, extensive geologic and engineering research will tend to build up confidence in the security of deep geologic disposal, but this may take an extended period of time, and no local region wants to become the "national dump." Meanwhile, there is considerable urgency to finding a solution to the "waste problem" which will achieve public confidence by maintaining secure control of the waste, has broader siting possibilities, and will not foreclose the final disposal option. If the solution could also avoid the stigma of a temporary, stopgap expedient, so much the better.

Into this situation came the concept of storing waste in secure engineered packages whose performance can be continuously monitored, checked, and readily retrieved for repair, repackaging, or final disposal. Such capability already exists, of course, but the incorporation of such an MRS facility into the main sequence of waste management was a new idea.

Particular interest was aroused by the possibility of fairly rapid implementation and by the fact that such storage would not require a permanent commitment of land, does not depend on geologic formations for containment and hence could in principle be located almost anywhere. An intermediate storage component in the system would relieve the pressing need to construct extensive pool capacity at reactor sites. Some years of storage would also reduce uncertainties in the design of geologic repositories, since heat and radioactivity in the waste decay rapidly at first.

3.0 SCOPE OF STUDY

The interest of Congress in the possibility of building MRS facilities is directed at certain key questions which have determined the scope and emphasis of my study. These questions are:

1. What would an MRS facility look like? Can it be built with existing technology? Would the public feel confidence in its safety?
2. How long would it take to design, build, and put into operation? How much would it cost?
3. How would such a facility function as a component of the overall waste management program? What role would it assume, and how would it assist in overcoming the problems of the current scheme?

Retrievable storage has been considered before for temporary purposes, but no study has been made of MRS as a permanent intermediate stage in waste management plans. Thus the systems analysis effort in this study serves an important role. The systems analysis discussion and results assume three stages of nuclear growth; namely a fully expanded steady-state system, a rapidly growing expansion phase, and the current moribund condition. Much of the interaction of the system with and without the MRS included can be discussed only qualitatively. Some cost calculations are presented, but much needed data are lacking because such interface considerations have not been included in previous studies, and repository designs are highly preliminary so far. I believe the systems analysis work should be continued and expanded beyond the scope possible in this study.

In choosing a reference example of MRS concepts, it should be noted that the basic technical feasibility of building an engineered package, monitoring its performance, and providing a shielded retrievable parking place has never been in question. Several different approaches to the concept have been proposed, however, with a wide variety of costs, complexities, and handling procedures. In order not to lose any good ideas, considerable effort has been devoted to winnowing these concepts down to the best few, and then choosing the two outstanding examples for preliminary design and cost analysis.

Another note should be made that public safety, while a basic requirement, was also not a basis of distinction between the several concepts considered for selection. The engineered package is the primary barrier in any MRS, and it was assumed that all concepts would use essentially the same package and meet the same safety standards. The facility does provide an environment for the package, however, and the degree of control over this environment was one basis for selection.

The two MRS concepts presented both represent a fairly high density of land use compared to other storage concepts. This tends to minimize the environmental impact in each case. The site requirements and construction impact of the two are widely different since one is underground inside a mountain and the other is at the surface on flat ground. The advantages and disadvantages of each type of site are presented and discussed.

Both concepts were judged to be based on currently available technology, so that initial design and planning for construction of demonstration or full-scale units could proceed as desired. A time schedule and cost estimate for a demonstration program is included.

4.0 DESCRIPTION OF MRS EXAMPLES

All of the numerous concepts considered for selection as a leading MRS example were based on currently existing technology. All could safely and conveniently handle and store a standard waste package, monitor package performance and detect failures, and retrieve failed packages for repair or replacement. A preliminary screening process reduced these further to about seven, all of which had the further feature that cooling was maintained by passive means.

Presented here are the two concepts chosen as the leading examples--the tunnel rack concept and the surface dry-well concept. These two were outstanding in several ways--adequate storage density, lower cost, mechanical simplicity, and ease of siting. Each will be described and illustrated, and then further comparison will be made.

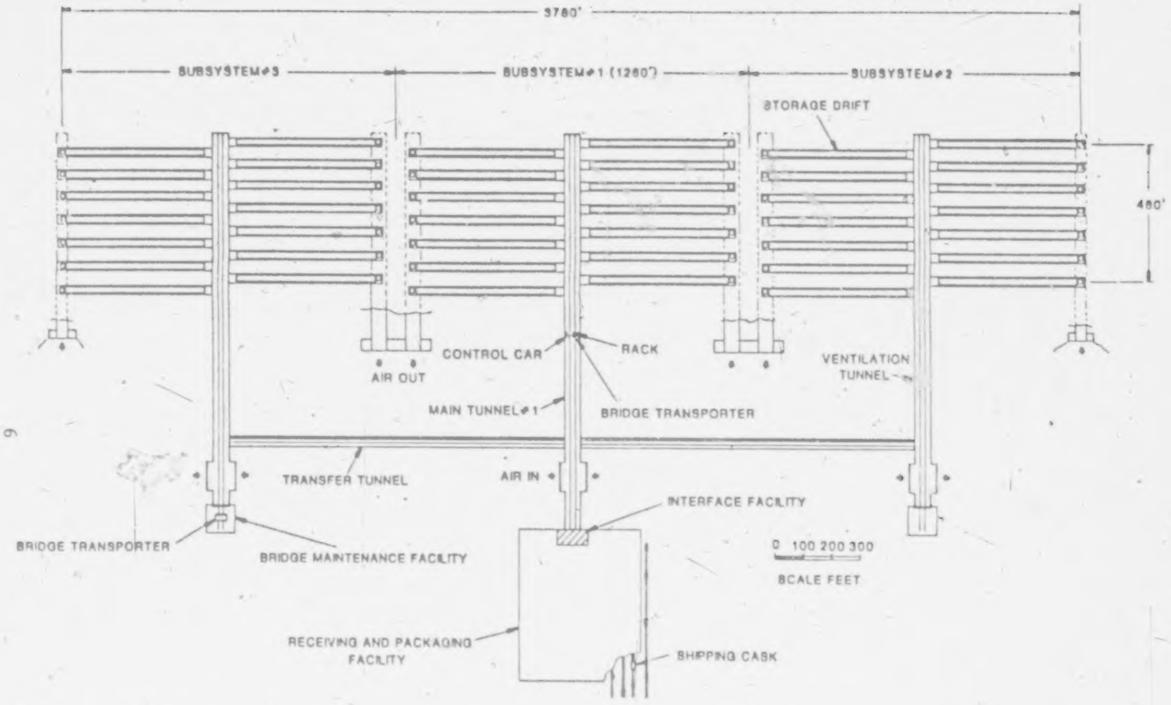
4.1 TUNNEL RACK CONCEPT

The tunnel rack storage system utilizes a network of tunnels cut into the side of a mountain or hill, and entered from a main portal which is level with or slightly above the valley floor (see Figure 1). The lateral drifts used for storage branch off from the short main tunnel to each side. Each drift ends in a vertical shaft which serves as a ventilation flue, and connects to another tunnel at a higher level leading back to the front face of the mountain.

The prepared storage canisters are placed in steel pallet racks which are moved in conventional warehouse style into the storage drifts. The waste canisters heat the air around them, producing a natural convection of air up the flues. Calculations show that this passive circulation system keeps the waste cooled far below its allowable level, even for short-cooled high level waste at close spacing in the tunnel.

Figure 2 shows the tunnel system in perspective view, while Figure 3 shows a sectional view through the ventilation flue. Figure 4 shows the pallet racks, etc.

Figure 5 shows a detail of the tunnel liner units, called modules, mounted free-standing on resilient supports inside the


3780'
SUBSYSTEM#3
SUBSYSTEM#1 (1260')
SUBSYSTEM#2
STORAGE DRIFT
480'
CONTROL CAR
RACK
AIR OUT
VENTILATION TUNNEL
MAIN TUNNEL#1
BRIDGE TRANSPORTER
TRANSFER TUNNEL
AIR IN
INTERFACE FACILITY
BRIDGE TRANSPORTER
BRIDGE MAINTENANCE FACILITY
0 100 200 300
SCALE FEET
RECEIVING AND PACKAGING FACILITY
SHIPPING CASK

TUNNEL STORAGE RACK SYSTEM

(PLAN VIEW)

Figure 1

TUNNEL STORAGE FACILITY FOR
SPENT FUEL AND HIGH LEVEL NUCLEAR WASTE

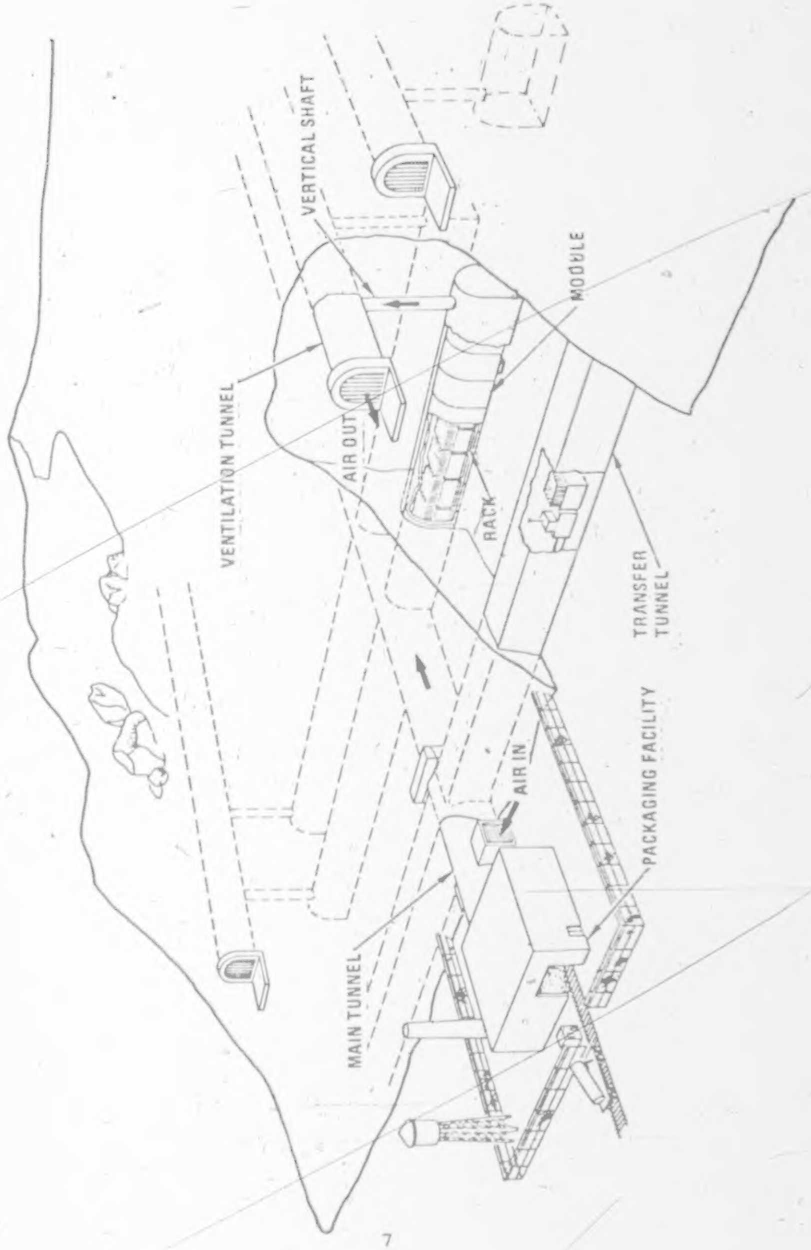
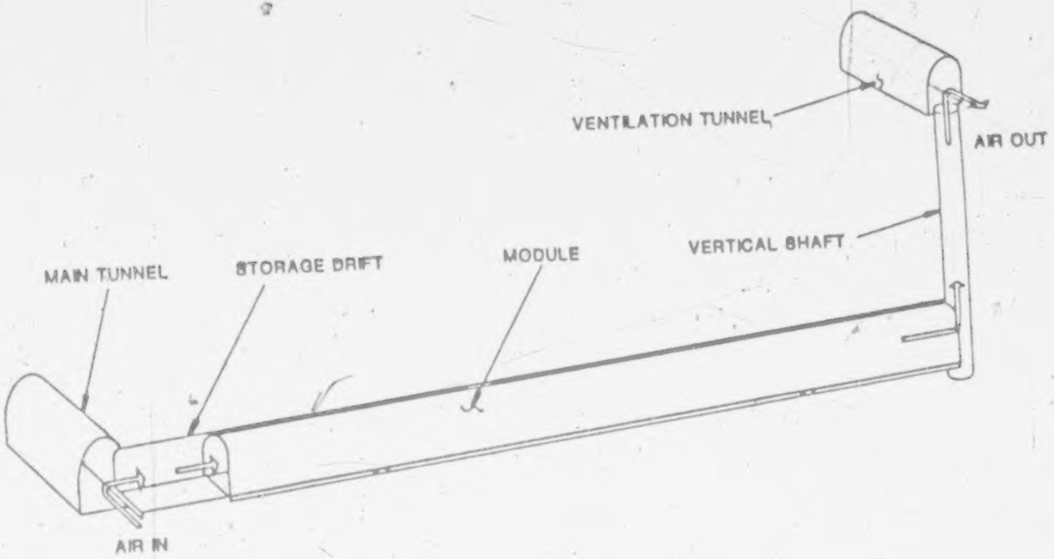
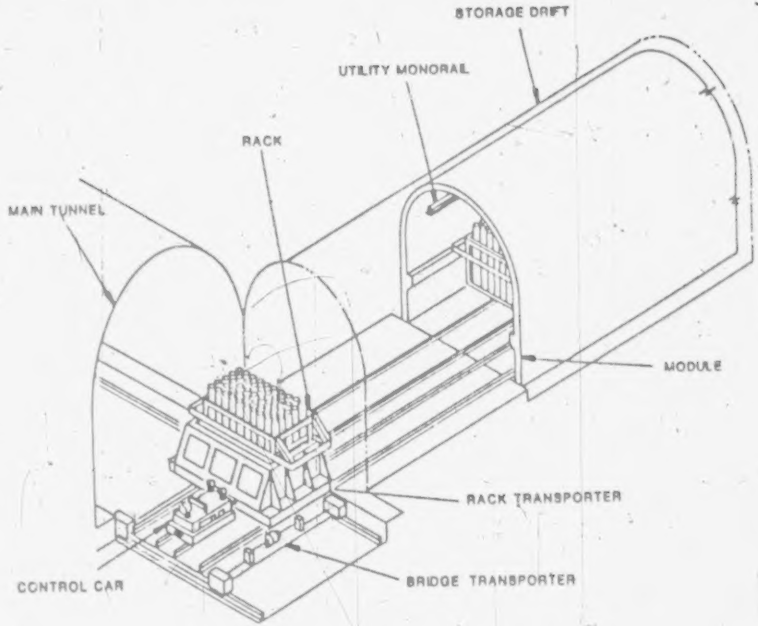

VERTICAL SHAFT
MODULE
VENTILATION TUNNEL
AIR OUT
RACK
TRANSFER TUNNEL
AIR IN
PACKAGING FACILITY
MAIN TUNNEL

Figure 2


VENTILATION TUNNEL
AIR OUT
VERTICAL SHAFT
MAIN TUNNEL
STORAGE DRIFT
MODULE
AIR IN

COOLANT FLOW DIAGRAM

Figure 3


STORAGE DRIFT
UTILITY MONORAIL
RACK
MAIN TUNNEL
MODULE
RACK TRANSPORTER
CONTROL CAR
BRIDGE TRANSPORTER

STORAGE EQUIPMENT

Figure 4

PRESTRESSED CONCRETE DRIFT MODULE

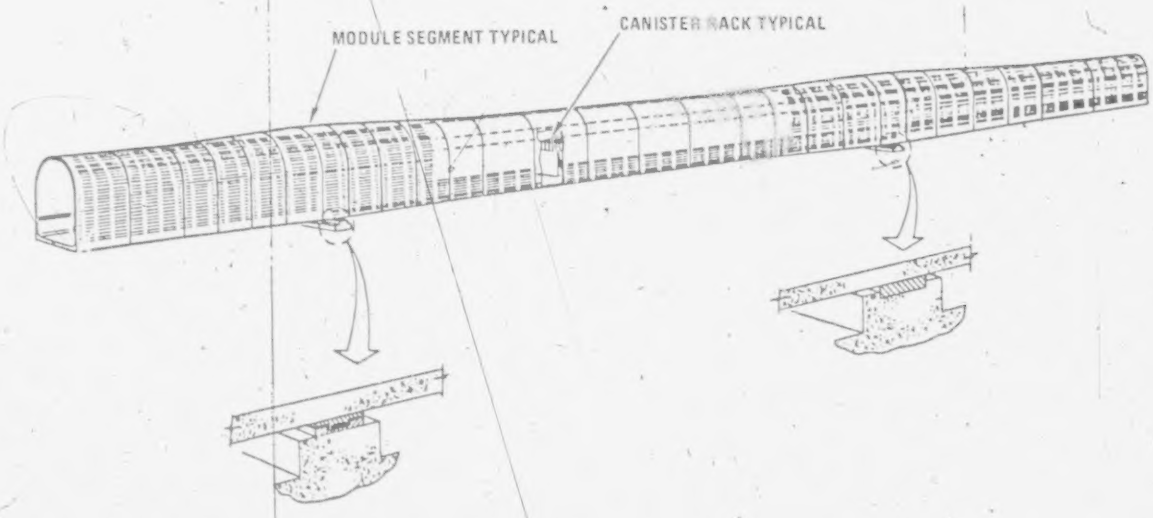

MODULE SEGMENT TYPICAL
CANISTER RACK TYPICAL

Figure 5

storage drifts. These modules are joined together by post-tensioned cables to provide a rigid beam structure. They have several functions which are important to the tunnel rack concept. One function is to isolate the storage canisters from the tunnel environment. The heated air flowing past the waste is prevented from heating the rock, and any water drips, small rockfalls, or other tunnel events are prevented from affecting the waste. The waste is thereby provided with a controlled, benign environment of warm, dry air circulating at a modest velocity--an ideal situation for an engineered package. If an earthquake should occur, the liner is strong enough to shield the waste from damage and maintain the air passage.

The question of the basic safety and stability of tunnels is an important aspect of the tunnel rack concept. Suffice it here to say that, while earthquakes are destructive on the freely vibrating surface of the earth, far less motion occurs in confined rock such as in a tunnel. Experts show convincingly that a well-made tunnel is the safest form of underground space, and with minor exceptions is the safest and most durable structure made by man.

To match the innate durability of the tunnel itself, the other components of the tunnel rack system are also rugged, simple, and durable. Care has been taken to insure that all of the internal parts, both fixed and moving, can be designed not only for long life but also for easy repair or replacement.

With the racks of canisters in place in the drifts, three different types of monitoring are possible, if required. Together they represent a nearly continuous flow of sensitive information about the condition of the packages, and permit the pinpointing of any failure before hazardous radioactive material is released.

The tunnel rack system has by far the highest density of storage and the lowest land requirement of any MRS concept. In the form of processed high-level waste the yearly output of a 1000 MWe reactor would take up only two feet of the length of a storage tunnel. Storage as spent fuel takes about five times as much space, or ten feet of tunnel. Table 1 shows the breakdown of construction cost estimates for a tunnel rack installation capable of storing about 50,000 metric tons of spent reactor fuel (1700 reactor years), or nearly 10,000 reactor years of processed waste. It should be noted that the receiving and packaging building, which is one of the largest cost items, would be required for any type of MRS, since all use the same type of package. Similarly, the cost of the canisters themselves tends to dominate the operating costs, but they are needed for any type of MRS.

4.2 SURFACE DRYWELL STORAGE

The surface drywell is the simplest of all concepts to build and to describe. A level piece of ground not subject to flooding is chosen, and a shallow well is sunk, about 40" in diameter and perhaps 24' deep. A prepared liner of metal, concrete, or composite is inserted, and the hole is backfilled with sand. The waste package is lowered from a shielded cask into the open liner, which is then filled with sand, plugged, and sealed. Appropriate provision is made for monitoring the condition of the package without opening the seal. A separate such well is provided for each canister to be stored. The heat generated by the waste is conducted into the surrounding soil, and finds its way to the surface. The spacing between wells is in the range of 10 to 15 feet, depending on the conductive capacity of the soil. Figure 6 shows a typical well in cross section, and Figure 7 shows a perspective view of a finished well field, with the packaging building in the distance.

The surface dry-well scheme is a moderately dense storage

TABLE 1. TUNNEL RACK CONSTRUCTION ($ millions, mid'81; 50,000 metric ton capacity)

Preconstruction	47.4
Underground construction	379.8
Interface facility	50.4
Receiving and packaging	148.0
Universal support facilities	75.0
TOTAL:	700.6

TABLE 2. SURFACE DRYWELL CONSTRUCTION ($ millions, mid'81; 50,000 metric ton capacity)

Preconstruction (included below)	
Drywell construction	667.2
Receiving and packaging	148.0
Universal support facilities	75.0
TOTAL:	890.2

TABLE 3. CONSTRUCTION COST PER KILOGRAM OF URANIUM FOR VARIOUS TYPES OF STORAGE FACILITIES*

	$/kg U
Water pool spent fuel storage	55
MRS:	
• Tunnel spent fuel storage	14
• Tunnel processed waste storage	9
• Surface drywell storage	16
Geologic repository storage	20

*These are arbitrary, rounded estimates taken by averaging several sources of data. They serve to illustrate the economic properties of the combined waste management system.

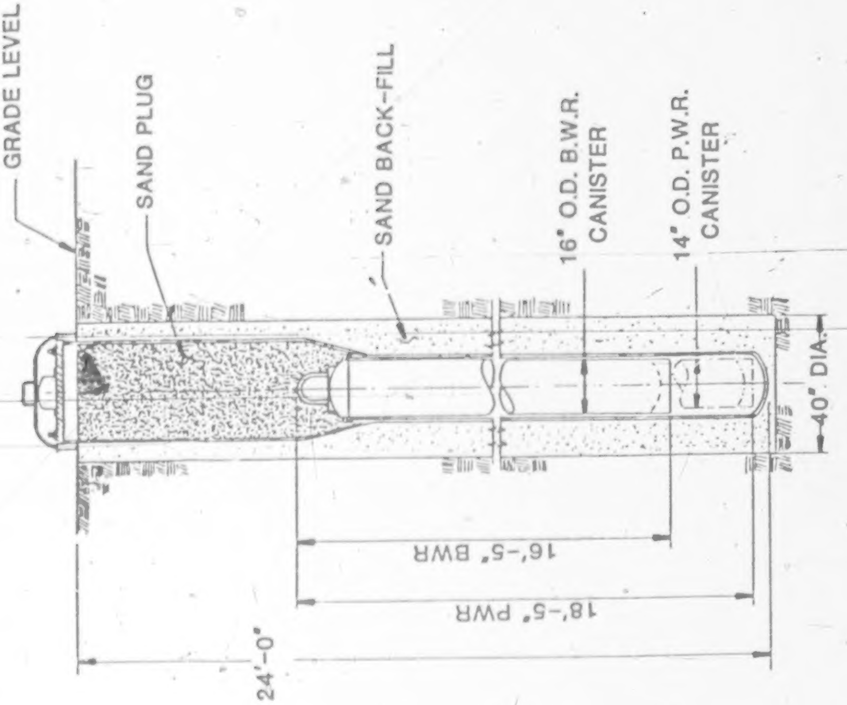

GRADE LEVEL
SAND PLUG
SAND BACK-FILL
16" O.D. B.W.R. CANISTER
14" O.D. P.W.R. CANISTER
40" DIA.
16'-5" BWR
18'-5" PWR
24'-0"

Figure 6
TYPICAL DRYWELL

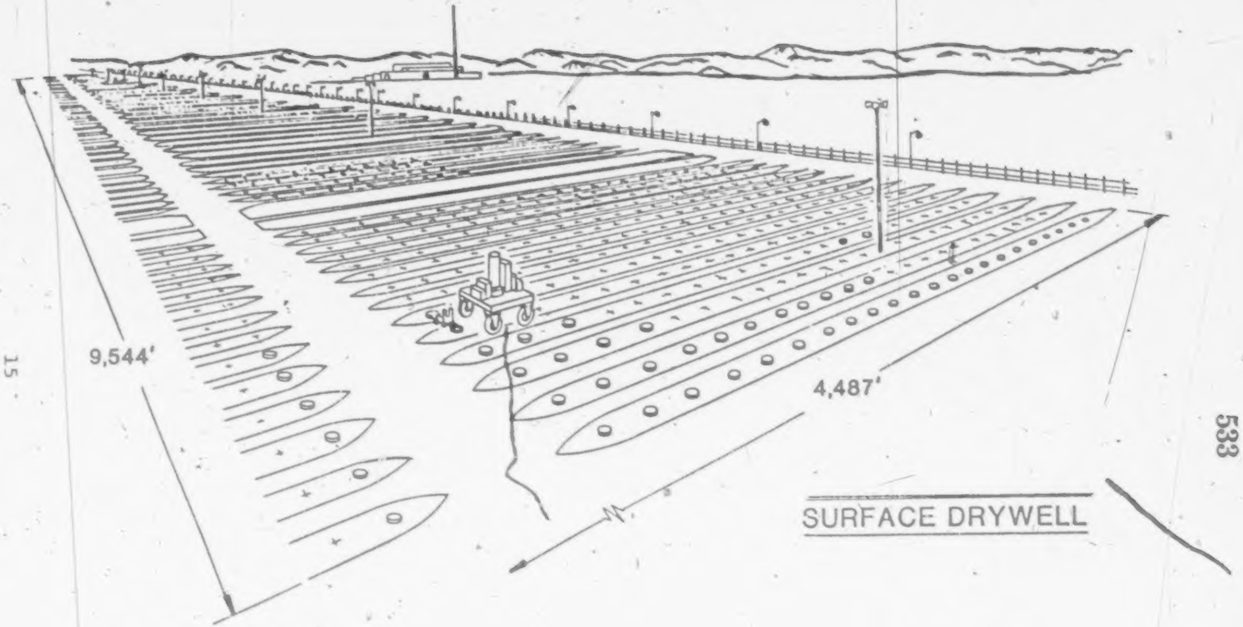

9,544'
4,487'
SURFACE DRYWELL

Figure 7

system requiring about one-third acre to store the spent fuel from one reactor year. Since the spacing is determined by heat output, there would be fewer wells but the same area requirement if processed waste were to be stored. The wells would also be much larger and more complex, since they would have to spread their higher heat load into a larger contact area of soil. A design for this case has not yet been perfected. Table 2 shows the construction cost for a surface dry-well system having the same capacity as the tunnel rack example.

5.0 SAFETY, SECURITY, AND ENVIRONMENTAL PROPERTIES OF MRS EXAMPLES

Both the tunnel rack and the surface dry-well schemes represent a high level of safety to the general public. Both are relatively immune to damage from floods, earthquakes, tornadoes, falling aircraft, or other common disasters. Both represent highly mundane, well-proven materials, structure and operations. The exact system that would be best optimized for MRS does not exist in either case, but very similar systems are in use, and every one of the components proposed is a well-known type. Each could be undertaken for construction with only the usual level of design and design verification testing.

Security aspects of the designs have to do with protection from deliberate unauthorized access, civil riot, terrorist or sabotage attack, or war damage. Both examples of MRS given are not likely to be of interest to saboteurs or terrorists because of the inert nature of the stored material. The energy required to unearth the waste, pulverise it to a fine powder, and deliver it to an area where it would constitute a threat would be so large that it could better be used directly against the chosen target. Ordinary explosives would be of little effect in case of war, while a nuclear charge would produce direct effects far in excess of the secondary effects of dispersed waste.

Both concepts are fully passive in operation. If deserted by operating personnel for some reason, both would maintain cooling and function normally for years, if necessary. The only aspect of access control where a major difference occurs is in the amount of perimeter which must be guarded against entry. Each section of the tunnel system has only one main portal and air inlet and two air vents higher up the face of the mountain. All of these could probably be arranged to be within the sight and control of a single guard located at the gate of the receiving building. The surface dry-well facility has a large perimeter fence and would be somewhat more difficult to control.

The environmental impact of both concepts would be benign. Either would be located in somewhat remote area, so that construction activity would be of little consequence. The tunnel system would take up far less room, but would require disposal of more spoil. Once in operation, both would require the same amount of traffic to and from the receiving building, with otherwise little visible activity. The overall impact of most lasting impact is the amount of real estate occupied and the amount of land use displaced. Here the tunnel system is outstanding, for most of its territory is in the middle of the mountain. The receiving building represents the only land otherwise useful. Both systems could easily be decommissioned and made available for normal use at any time.

6.0 SITING REQUIREMENTS OF THE MRS EXAMPLES

Siting requirements, site selection and qualification, and site acceptance have been the major problem areas of the repository program. The MRS concept will not become a useful adjunct to the overall program unless it exhibits significantly reduced problems in these areas. Fortunately, there is every reason to expect that this is true.

The technical qualifications needed by a proposed tunnel rack site are basically two: a reasonable degree of vertical relief, and a reasonably sound structural rock. Although a tunnel type system could be built even in flat country by using cut-and-cover techniques, the natural habitat for a tunnel is in the side of an already existing hill. Similarly, a surface dry-well would be out of place in rugged country, but is at home in the flat.

The tunnel concept does not use the rock as a sink for the heat produced, so that it is a fully standard tunnel, resembling a highway tunnel in most respects. Although such tunnels can be built safely and soundly in almost any kind of rock, the cost is higher in poor structural material. One would not choose a hill of sand, for example. With this limitation, there is still a reasonable certainty of finding possible sites in nearly every state in the United States. The amount of land needed to store 50,000 tons would be about 5 acres of major buildings (150 acres of grounds) outside, and 200 acres of mountain interior, of which only 20 contain waste.

The surface dry-well is even easier to site. All it needs is some level ground, about one thousand acres in extent for the above capacity. Although the ground must conduct the heat released, the type of soil or rock is of little consequence except to set the exact spacing required. There would seem to be almost no technical requirement for such a site, and it is certain that any state could locate some suitable ones.

The political qualifications of the site are a much more difficult problem, and beyond the scope of this report. However, it seems clear that technical qualifications or the lack of them would not be a valid basis for rejecting or favoring any particular state or region. With such pseudo-technical issues ruled out, the selection of sites can be made by the normal process that Congress uses to hand out plums or lemons--judicious application of sugar. If agreement cannot be reached any other way, Congress could with complete fairness require that each state provide a candidate MRS site, from which a few regional sites could be chosen by local agreements or other means.

7.0 WASTE MANAGEMENT SYSTEM WITH AND WITHOUT MRS

The United States' program for management of its nuclear waste materials is a massive affair on which considerable analysis and planning effort has been expended. Any proposal to modify such an ongoing program by adding a major new component must be supported by a clearcut analysis of what would be gained if the change were made, what would be lost if it were not, what costs or savings are involved, and what disadvantages must be accepted. The discussion below summarizes one person's answers to these questions.

7.1 ORIGINAL WASTE MANAGEMENT PLAN, PROBLEMS NOW FACED, AND EFFECT OF ADDING MRS FACILITIES

The originally planned sequence of events for completing the nuclear reactor fuel cycle called for storage of freshly discharged spent fuel in water pools at the reactor for a few months, reprocessing to recover valuable fuel materials, and conversion of the high-level waste to solid form for permanent isolation in a repository. The repository was expected to accept the waste within ten years after discharge from the reactor, and to handle the heat burden characteristic of that age waste, about 50 kW for one year's residue from a 1000-MW plant.

Difficulties arose when it was realized that no one could predict the physical, chemical and hydrothermic effects of large quantities of heat flowing into the rock matrix. Extensive research and field test programs lasting many years appeared essential to any guarantee that waste would remain isolated from the biosphere. Also, only a few kinds of rock appeared sufficiently homogeneous and free from water to be considered, which greatly restricted the potential choice of sites.

Another set of problems appeared with the decision to postpone processing for an indefinite period. This meant that the spent fuel would have to stay at the reactors or in other water pools until reprocessing started up again, or else the repositories would have to accept spent unreprocessed fuel. Spent fuel would aggravate the heat problems of the repositories, because it contains 30 times as many radioactive atoms and over 50 times as much ultimate heat energy as the high-level waste. It also contains radio-poisons--species which are dangerous if ingested--lasting hundreds of thousands of years, instead of the 600-year danger level for processed waste.

The consequence of these events was increased vulnerability of the program to valid objections, much higher projected cost, and almost total resistance to siting investigations. Meanwhile, urgent steps are being taken to handle the unexpected glut of spent fuel accumulating in the reactor storage pools. Building new pools will be required before long to prevent reactor shutdowns, but the cost per unit stored will be very high, and the time of use might be very short.

To consider the effects of including MRS facilities in the program, let us first examine the original scheme, in which spent fuel is promptly reprocessed, and solidified high-level waste is sent to repositories. An MRS would be interposed between the reprocessing plant and the repository to precool the waste for some optimum period, expected to be 15 to 35 years. The effects of this change can be summarized as follows:

1. The repository, receiving waste with one-fifth to one-third the heat output, would have fewer uncertainties from thermal effects and could store the material more compactly and at lower cost. Most of the fission products of biological significance would have decayed to minor levels.

2. The MRS can be built much sooner, retains positive control of the waste, and costs less per unit stored than the repository. It would permit positive, politically feasible steps to be taken to implement a national waste policy, while still providing time to resolve the siting and thermal problems of terminal storage.

For the current situation, in which reprocessing plants have not been built on schedule and huge backlogs of spent fuel are accumulating, the addition of MRS facilities would have some effects in addition to those above:

1. If built promptly enough, MRS installations could relieve the pressure on reactor pool storage at much lower cost than building more pools.
2. If reprocessing plants are built to serve a rejuvenated nuclear industry, the MRS units would function as a reservoir to receive fresh spent fuel and return the oldest material to be reprocessed first. (Reprocessing costs are lower with older fuel.) After reprocessing, the high level waste could return to the MRS for further cooling before going to the repository.
3. If for some reason reprocessing plants are not built, spent fuel can be precooled in the MRS and then sent on to final storage.

The overall effect on the national program from adding MRS facilities appears to be highly beneficial. The public perception of safety, hence acceptability, should be higher for a program which retains positive control for a longer time, which can be fixed if something goes wrong, and which does not require an immediate irreversible commitment of land use. The immediate problems facing the repository designers are relieved with cooler waste and more time to conduct field tests. The absolute level of safety, already high, is further improved by adding the MRS, since the period of storage in somewhat accessible surface pools is reduced, ultra-secure monitored storage is maintained until the principal hazardous species have decayed, and the final unmonitored storage handles only the long, slow tail-end of radioactive decay.

The overall cost of waste management is a minor fraction of the cost of nuclear electric power, so this should not be a controlling factor in decision making. However, in a time of fiscal austerity, it is still a happy circumstance that the discounted cost of waste handling would be reduced by adding the MRS system to the program. This matter is discussed in the following section.

7.2 OVERALL SYSTEM ECONOMICS COMPARISON: THREE SCENARIOS

If the use of MRS facilities is adopted, they would be constructed as soon as possible and would cost substantial sums of money. Yet I claim that this is a money-saving step compared to not building them, with one proviso: that the nuclear power option is not abandoned. With an ongoing and growing nuclear industry, new reactors will be built and the full nuclear fuel cycle will be implemented. The original objective of Congress in supporting development of nuclear power was "to insure the benefits of plentiful and low-cost electricity to the American people," and this is still a valid objective. Thus, in examining the cost effects of MRS we include the entire system in our analysis, whether or not a given expense would be met by an electric utility, a public corporation, or by a unit of government.

With this viewpoint, it is clear that costs will be minimized if the period of storage (hence the capacity required) in very high-cost reactor pools is kept short and lower cost storage in MRS is substituted. Similarly, the MRS capacity needed is less if the storage period is short, since this too is a cyclic or reusable capacity. However, in the case of MRS there is an offsetting effect in that the longer the period of MRS storage, the later the cost of the repository appears in the cash flow, with present-worth analysis. This latter effect is enhanced by the reduced cost of the repository from receiving cooler waste, permitting more compact storage. These interacting effects indicate that there is in fact an optimum period of MRS storage, at which the minimum overall cost would be attained.

My analysis of these economic effects is highly preliminary, because many of the costs are not known with sufficient precision and because the effects of age of waste on transportation costs is unknown. I have assumed tentatively that there is no effect. Another assumption is that since the waste must be packed for final disposal whatever the steps in between, the cost of the package is not a factor in comparing different schemes. The receiving and packaging facility included with each MRS facility is an expensive item. I have assumed that it was required at each site to provide the capability of repackaging damaged waste. However, for the case where reprocessing plants are plentiful, it could be much cheaper to provide this capability at the reprocessing plant, and to return the occasional damaged package there for rework.

Table 3 shows the base unit costs assumed in my analysis for reactor pool storage, for tunnel rack MRS, for surface drywell storage, and for a generic repository. Three different growth scenarios for the nuclear power industry were assumed. The first represents a steady state of growth in which reactors, MRS units, reprocessing plants, and repository capacity are all being added at a steady rate. For such a situation the comparison of the system with and without MRS is made using unit costs, with the only optimization being the relative periods of storage in each type, which sets the relative capacities to be added.

The second scenario represents a transient condition in which nuclear power capacity is rapidly growing, but reprocessing capacity is still recovering from the current state of deficit. This system shows MRS acting as a reservoir for spent fuel as well as a cooling station for processed waste. The alternative to MRS here is greater pool storage capacity, it being assumed that reprocessing units cannot be built and licensed any faster.

The third scenario represents the pessimistic assumption that reactors now running or under construction live out their lives, but no new ones are ever undertaken. Here the assumption is that reprocessing plants are never built, the repositories must accept spent fuel, and the MRS units would serve as receivers for the hot spent fuel from reactors, and gradually pass it on to repositories as they are built at a relaxed schedule (See Fig. 8). Without MRS additional pools must be built, and repository construction would have to be accelerated as much as possible. The examples use the tunnel-rack system to represent MRS costs.

Tables 4, 5 and 6 show the results of the economic comparisons, and Figure 9 illustrates the effect of various periods of storage in MRS. The economic benefit of the MRS option is clear from these results, although it varies greatly with the scenario assumed. However, as noted earlier, the economics only accent the more important benefits of earlier positive action, greater public acceptance, and enhanced overall safety.

8.0 THE NEXT STEP--AN OPERATING DEMONSTRATION OF MRS

In previous sections a picture has been presented of what MRS facilities would look like, how they would function, and what they would cost. The remaining question is, if the decision is to proceed with this option, what is the next step to be taken?

In the selection of MRS concepts described earlier, an important criterion was the readiness of the technology for immediate full-scale implementation. In no case is an exact copy of the proposed system available for inspection in the field, but both the selected versions incorporate equipment, processes, structures, and operations, each of which is in itself fully current. I believe either system can be recommended for full-scale implementation.

Nuclear waste programs, however, are still a matter of controversy. I anticipate that the Congress may find it desirable to select a site where a full-size MRS would be acceptable and useful, but construct as rapidly as possible only a small first phase for demonstration purposes. This demonstration phase would serve the following purposes:

1. It would represent the earliest feasible way to put an operating storage unit into commission.
2. It would tend to build public acceptance because its simplicity and reliability would be obvious.
3. It would begin to relieve the glut of stored spent fuel.
4. It would confirm and demonstrate the design and cost assumptions, and permit extension of the site to full capacity (and the construction of other sites) with maximum confidence and optimum speed.

For the demonstration phase it is assumed that a receiving and packaging building would be built, but that it would at first be equipped with only a single line, skeletonized set of equipment, which could be later expanded to the full capacity. A demonstration tunnel rack system would consist of only two storage drifts and a short section of main tunnel. Once the active drift was loaded, plugs could be provided that would

TABLE 4. SCENARIO 1: RAPID INDUSTRY GROWTH.
Present worth of facility construction costs for 1 kg of heavy metal throughput capacity.

a) With MRS facility in system:

Component	Yrs. storage	Yr. needed	Cost ($/kg)
Pool	3	1	3.30
Tunnel	25	4	2.07
Repository	Indefinite	29	7.39
		TOTAL SYSTEM COST:	12.76

b) Without MRS facility in system:

Component	Yrs. storage	Yr. needed	Cost ($/kg)
Pool	9	1	9.90
Repository	Indefinite	10	16.40
		TOTAL SYSTEM COST:	26.30

Basis and assumptions:

1. New reactors, reprocessing plants, and storage facilities are being built steadily as needed.

2. With MRS, pool storage lasts 3 years, reprocessing lasts 1 year. Time in MRS is 25 years (age of waste into MRS is 4 years, age into repository = 3 + 1 + 25 = 29 years).

3. Without MRS, pool storage lasts 9 years, reprocessing lasts 1 year; age into repository = 10 years.

4. Present worth factor @ 2% based on age of waste. Precooling benefit for repository = 0 for 10 year-old waste; varies with heat output applied to 1/2 of capital cost.

5. Unit cost for pool = $55/kg, working life = 50 years. Tunnels for spent fuel = $14/kg. For processed high-level waste = $9/kg, working life = 100 years. Repository for 10-year old waste = $20/kg.

TABLE 5. SCENARIO 2: RAPID INDUSTRY GROWTH, REPROCESSING CAPACITY DELAYED
Present worth of facility construction costs for overall system.

a) With MRS both as prereprocessing store for spent fuel and as precool for waste:

Yrs. in pool	Yrs. reprocessing delay	Yrs. precool	Age into repository	Cost pool	Cost MRS 1	Cost MRS 2	Cost repository	Total cost ($/kg)
3	20	13	37	3.30	2.63	0.73	5.95	12.61
3	15	18	37	3.30	1.97	1.12	5.95	12.34
3	10	23	37	3.30	1.32	1.57	5.95	12.14
3	5	28	37	3.30	0.66	2.12	5.95	12.00
3	0	33	37	3.30	-0-	2.73	5.95	12.00

b) Without MRS. Extra pool storage required for delayed reprocessing capacity:

Yrs. in pool	Yrs. reprocessing delay	Yrs. precool	Age into repository	Cost pool	Cost MRS 1	Cost MRS 2	Cost repository	Total cost ($/kg)
20	20	20	21	22.00	---	---	9.64	31.64
15	15	15	16	16.50	---	---	11.68	28.18
10	10	10	11	11.00	---	---	15.20	26.20
9	9	9	10	9.90	---	---	16.40	26.30

Basis and assumptions:

1. With MRS available, pool storage is 3 years, 1 year in reprocessing, waste enters repository at age 37 years. Delay in reprocessing varies.
2. MRS tunnels have lower cost (higher capacity) for HL waste than for spent fuel.
3. Waste must be at least 10 years old to enter repository.
4. Present worth @ 2% from time of discharge. Precooling credit for repository.

TABLE 6. SCENARIO 3: NO NEW REACTORS, NO REPROCESSING
Present worth of total facility construction.

a) With MRS--Unit 1 ready 1990, pool capacity 36 million kg:

Unit	Capacity	Cost ($ millions)
1	50 M kg	637
2	50 M kg	553
3	50 M kg	434
4 - Delay repos.	150 M kg	228
	TOTAL SYSTEM COST:	1852

b) Without MRS, first repository year 2000, 2nd repository year 2015:

Unit	Capacity	Cost ($ millions)
1 - Excess pool capacity	44 M kg	2420
2 - First repository	80 M kg	1104
3 - Second repository	60 M kg	600
	TOTAL SYSTEM COST:	4124

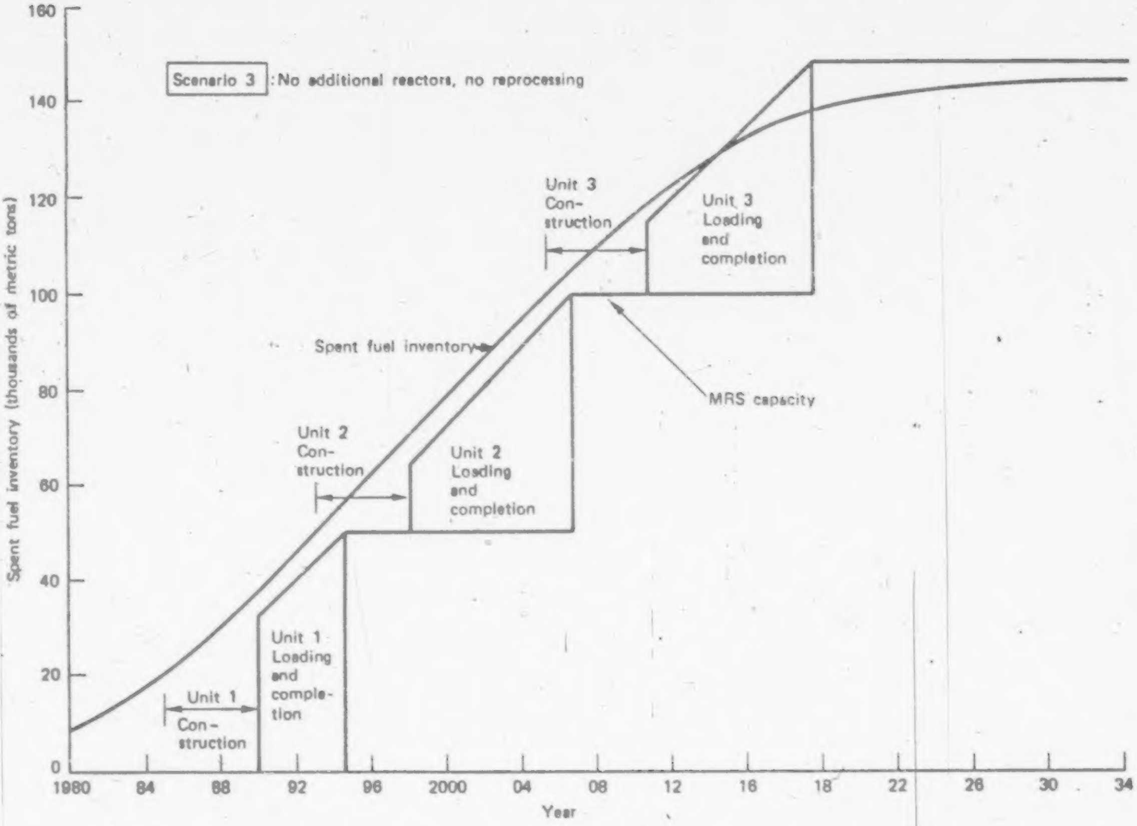


Figure 8. Spent fuel inventory from present reactors.

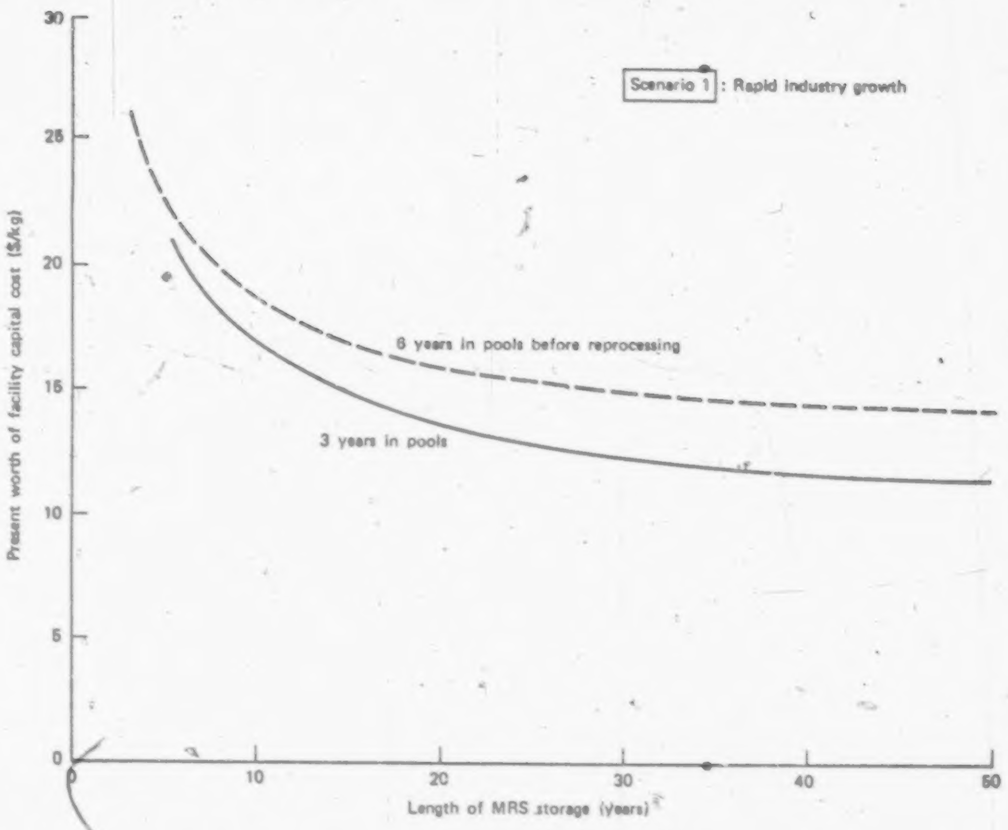


Figure 9. Total waste system cost vs years of MRS precooling.

permit access for further construction of the full capacity. The planned demonstration loading would be 1000 canisters.

The same capacity of 1000 wells would be provided for a surface dry-well demonstration, with construction of further capacity a simple matter at any time. It should be emphasized that a demonstration phase with limited capacity is not the lowest cost way to implement an MRS option, since there are inevitable overlaps in contracting and building any project in stages smaller than the optimum unit scale.

The costs and time schedules for MRS demonstration projects are given in Tables 7 and 8, and in Figure 10. It should be noted that it is assumed that Title I design and equipment selection testing can be accomplished with operating funds from the existing waste program. This step will save about 18 months in the Federal budget cycle to begin line item construction. Under the proposed plan, the first waste canisters could enter the MRS in about 1990.

9.0 CONCLUSIONS AND RECOMMENDATIONS

This assessment of the possibility of adding monitored retrievable storage facilities to the national waste management program has illuminated several important advantages of such a step. These include earlier positive action, improved public acceptance, mitigation of rock heating problems for repositories, better control of the waste during decay of the most dangerous isotopes, a reduced period of storage in expensive reactor pools, and easier selection of sites. Indication of lower overall cost is a convenient but less important benefit.

I was able to find no technical disadvantages of this approach, nor any better alternatives. Two kinds of nontechnical objections have been offered: (1) with an MRS program underway, Congress might be tempted to undermine or delay progress on the basic repository program, and (2) since MRS is

TABLE 7. TUNNEL RACK DEMO ($ millions, mid'81; 1,010 canisters)

Receiving and packaging		
Receiving and packaging building	123.1	
Improvements and support buildings	26.5	
Engineering	37.4	
SUBTOTAL:		187.0
Canisters and racks SUBTOTAL:		6.6
Tunnel Tunnel/structures		
Interface building	42.8	
Tunnel storage (2 drifts)	30.4	
Engineering	18.3	
SUBTOTAL:		91.5
TOTAL:		285.1

TABLE 8. OPEN FIELD DRYWELL DEMO ($ millions, mid'81; 1,010 canisters)

Receiving and packaging		
Receiving and pacakging building	123.1	
Improvements and support buildings	26.5	
Engineering	37.4	
SUBTOTAL:		187.0
Canisters SUBTOTAL:		6.2
Drywell storage		
Drywell encasements	9.5	
Transporter	1.2	
Improvements and support buildings	2.7	
Engineering	0.9	
SUBTOTAL:		14.4
TOTAL:		207.6

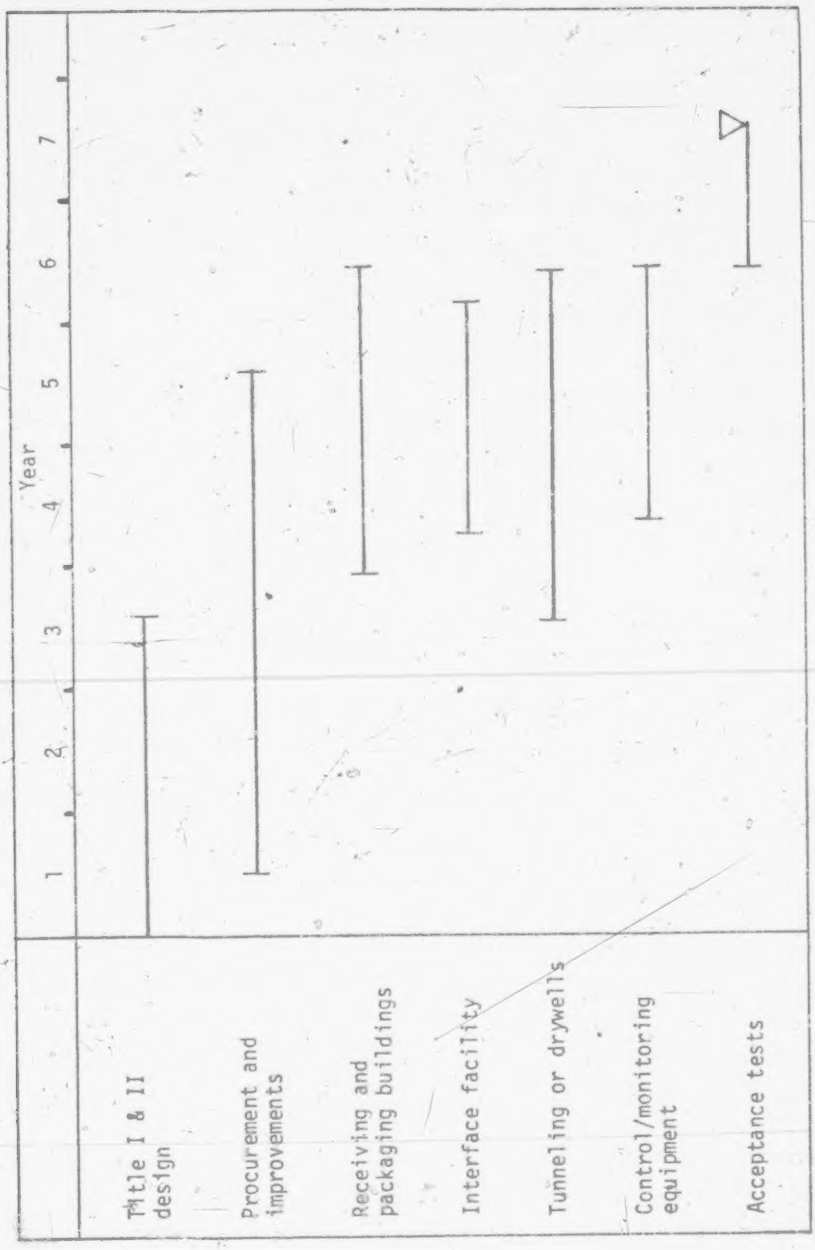


Figure 10. Time schedule for MRS demonstration facility.

not sealed unmanned, (and uncontrolled) storage, it does not contribute to the goal of solving the waste problem in this generation, but passes it on to the next. The first objection could only be valid if nuclear power indeed becomes a dead industry. There is already enough well-aged fuel on hand to begin the loading of a repository as soon as it could be available. With any new construction of reactors underway, the need for a continuing program of repository construction can be shown by simple projection, with or without MRS.

The second objection is simply not valid. Waste which has been precooled under rigid control and monitoring until the hazardous species have decayed and thorough geologic studies have been completed can be handed over to our successors with much clearer conscience than uncontrolled buried waste, which we hope will not be thrown back to the biosphere by heating effects. The objective is not to do the job hastily, but to do it right.

The recommendation which results from my investigation is unequivocal: Monitored retrievable storage of facilities capable of handling either spent fuel or processed high-level waste would be a productive and valuable addition to the national waste management program, and the construction of full-scale or demonstration units should be considered for the earliest possible time. Such a step would be a major influence in restoring the pathway leading to the benefits of abundant nuclear electric power to the United States.

Because of licensing problems, however, plans for MRS facilities cannot be expected to substitute for more immediate steps to meet the utilities need for near-term away-from-reactor storage capacity. Such needs will have to be met using technology already in place. Further, it should be noted that MRS storage is not a substitute for an ultimate waste repository. MRS storage is safe, economical and long-lived, and it will permit us to get on with reprocessing and the rest of the nuclear energy program, but its advantages in public acceptance and ease of siting would vanish if we ask for perpetual committment to temporary storage.

APPENDIX III

Responses to Additional Questions Submitted to Witnesses

Department of Energy
Washington, D.C. 20585

October 21, 1981

Senator James A. McClure
Chairman, Energy and Natural
  Resources Committee
Room 3104, Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator McClure:

As a follow up to the October 6 hearing before the Senate Energy and Natural Resources Committee and the Environment and Public Works Subcommittee on Nuclear Regulation, you requested in your letter of October 8, 1981, answers to several questions pertaining to S. 1662. Our response is enclosed. Comments on a section-by-section analysis of the bill, also requested, were previously provided in our letter to you of October 16, 1981.

If you have any questions, please call Hank Edler or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

Thomas K Pretorius

Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosures

cc: Mr. Al Astrin
    Energy and Natural Resources
      Committee Staff

United States Senate
WASHINGTON, D.C. 20510

October 8, 1981

The Honorable Shelby Brewer
Assistant Secretary for Nuclear Energy
The Department of Energy
James Forrestal Building
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Brewer:

As a follow up to the joint hearings held on October 6, 1981 by the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works on S. 1662 and S. 637 regarding nuclear waste policy, we are enclosing additional questions which we would appreciate your assistance in answering for the record. In addition, we would like to request that you submit a section-by-section analysis of the bills as well as any further detailed comments you might wish to make.

Your assistance is appreciated, and we look forward to your prompt submission of this requested material.

Sincerely,

Alan K Simpson
Alan K. Simpson
U.S. Senator

James A. McClure
James A. McClure
U.S. Senator

AS/JM/pgh

Enclosures

Q1. Please provide the Committee with an analysis of the cash flow requirements which would be imposed on the executive branch by enactment of S.1662. For example, the user fee authorized in section 603 of the bill if in effect in 1980 would have generated $250 million. Over the long run this fee will therefore generate substantial sums. However, the bill also assumes near-term expenditures, for example, for away-from-reactor spent fuel storage facilities. Assuming enactment in June 1982, what level of net outlay by the Federal government will be required in each fiscal year after FY 82 to comply with S.1662? In what years will surpluses be generated?

A1. The attached table projects the revenue, cost, and surplus funds projected as a result of passage of S.1662.

Attachment

Cash Flow Table

Fiscal Year	Revenues*	Assumed Escalation over 1982	Annual Costs ** (Escalated $) S.1662	Annual Surplus (Escalated $) S.1662
1982	379	-	237	142
1983	438	1.07	414	24
1984	501	1.134	482	19
1985	549	1.188	519	30
1986	627	1.238	673	-46
1987	659	1.29	662	-3
1988	690	1.34	410	280
1989	712	1.39	425	287
1990	727	1.44	622	105
1991	737	1.49	752	-15
1992	748	1.54	756	-8
1993	770	1.59	830	-60
1994	786	1.64	605	181
1995	786	1.69	492***	294
1996	801	1.74	524	277
1997	843	1.79	915	-72
1998	870	1.84	995	-125
1999	912	1.89	1060	-148
2000	949	1.94	1311	-362
TOTAL	13484		12684	800

* Assumes a 60% availability factor using the latest nuclear generating capacity projection from ORNL data base. A 70% availability increases revenues 14% or $2.2 billion through the year 2000.

(continued)

** Costs include the following:

1) Site exploration and characterization
2) Exploratory shaft construction
3) Test and Evaluation Facility
4) Technology to support license application
5) Construction costs associated with two repositories--one coming on line 6 years after the first. If costs for only one repository are included, the total would be reduced by $3.7 billion.
6) Packaging facility integrated into the repository.
7) The costs to prepare the proposal for a Monitored Retrievable Storage Facility are included but the actual costs for construction and operation (estimated to be between $200 to $800 million per facility--unescalated) are not included.
8) The costs for Away-From-Reactor Storage Facilities are not included since these costs will be offset by a separate fee.

*** Beginning in 1995, costs include operating costs for the first repository.

Question

2. Is it your counsel's opinion that the provisions of Sec. 603 (relating to the user fee) would require any regulatory authority with jurisdiction over retail electricity rates to permit a pass-through of the fee to retail customers? Why or why not? Is there a precedent for such a Federally-mandated surcharge on electricity rates?

Answer

No. In general, state public service laws provide that all rates and charges received by any public utility in connection with the sale of electric energy subject to the jurisdiction of the public service commission shall be just and reasonable. In accordance with this rate-making authority, all operating expenses which are to be borne by retail jurisdictional ratepayers are subject to approval by such state public service commission. Ordinarily, a utility is entitled to recoup operating expenses if they are shown to be (1) utility related, (2) actually incurred and (3) reasonable. Whether a particular operating expense is reasonable is subject to a considerable latitude of regulatory judgment. However, although the provisions of Section 603 would not require a state public service commission with jurisdiction over retail electricity rates to pass-through the user fee to retail customers, under generally accepted rate-making principles the user fee may be an allowable expense that a utility is entitled to recoup in its retail rates and charges.

Finally, we are unaware of any precedent for a Federally-mandated surcharge on electricity rates.

Q3. Under a fiscal year 1981 Appropriation Act, DOE is required to report to Congress on the monitored retrievable storage concept contained in the version of S.2189 which passed the Senate in 1980. Please provide the Committee with a copy of this report for the record.

A3. The report requested by Congress is in the last stages of preparation and internal review by the Department. The current schedule for completion of review and printing calls for delivery to Congress by mid-November at which time a copy of the report will be provided as requested.

Q4. On March 7, 1981 George D. DeBuchananne, Chief of the Office of Radiohydrology of the U.S. Geological Survey, wrote to Colin A. Heath of the DOE's Office of Nuclear Waste Management. A copy of that letter is attached. Does DOE have any comment on the conclusion expressed in that letter with regard to the chances of predicting the appropriate characteristics for a nuclear waste repository located in bedded and domed salt?

A4. The Department broadly agrees with the principal conclusion of the subject letter, but we view the relative complexity of salt domes in a somewhat different light. Our response to the USGS Office of Radiohydrology is attached, for the record. In essence, the origin of salt domes results in complexities not found in simple, ideal salt beds. To represent the more complex structure requires more information (that is more field measurements) for detailed modeling. It should also be said that salt beds usually depart from the ideal, exhibiting some deformation and localized dissolution which also require careful study. In spite of the structural and stratigraphic complexities that may exist, many salt domes appear to have been stable for millions of years, protected from major dissolution by rock barriers between the dome and extensive flows of fresh circulating groundwater. If the salt mass has remained protected from groundwater, knowledge of all the details of the complexities is not critical to the evaluation of a dome. The essential question is whether or not we can mine into a dome, emplace wastes, and reseal the openings so that the natural barriers remain effective for a sufficient length of time. Effects of heat from the emplaced wastes would be a big part of this question.

Please note that the attached letter, dated May 8, 1981, states that DOE intended to decide on which of two regions of "bedded" salt we wish to focus our attention on--Paradox or Palo Duro. Following discussions with representatives of the States of Texas and Utah, we have concluded that the required technical information to make such a selection is not yet available and that both regions will continue to be considered until 1983.

MAY 8 1981

Mr. George D. DeBuchananne
Chief, Office of Radiohydrology
U.S. Geological Survey MS 410
Reston, Virginia 22092

Dear George:

I greatly appreciate your letter of March 7 which summarizes USGS ideas on the suitability of bedded salt versus dome salt. That letter provides a concise and a very helpful comparison of the two types of salt bodies, and confirms what Harry Smedes had previously advised me. His understanding had, in turn, benefited by numerous informal discussions with Pete Stevens and by his lengthy discussions with Al LaSala last January when both of them were working with DOE/NPO on a review of the ONWI report (109) dealing with the selection of salt domes in the Gulf Interior Region.

Let me clarify the sequence and times of decisions to which you referred in your first paragraph: During the next year, in fact sometime this fall, we will decide on which of the two regions of "bedded" salt we wish to focus our attention on -- Paradox or Palo Duro. At some later time we will have to make a decision as to which body of salt will be the site for an experimental shaft -- the "bedded" salt previously selected or a salt dome. It seems that it is this second decision to which your letter refers. This is a difference only in detail, for we will have to make that decision fairly soon in order to start long-lead procurement, but not necessarily "during the next year."

Your comparison used bedded salt of the WIPP Site versus salt domes. However, it is important to remember that we are not permitted to consider the WIPP Site as a candidate for the selection we must make, and that neither the Paradox nor the Palo Duro is as simple as the WIPP Site. In fact, although some undisturbed bedded salt does occur in the southwestern part of the Paradox Basin, the Paradox is dominantly a series of salt anticlines in which structural and stratigraphic complications were produced by flowage of salt; some anticlines are diapiric. Exhumation of some anticlines resulted from late-Tertiary erosion and was followed by dissolution of salt and collapse of the crests of anticlines.

The Palo Duro part of the Permian Basin is complicated by contemporary seismicity and uncertainty of age and consequences of major fault zones in the region.

In light of the above comments, I would appreciate hearing the USGS views on a comparison of all three regions, namely, 1) salt domes in the Gulf Interior Region of Louisiana, Mississippi and Texas; 2) the Paradox Basin of Utah and

Colorado; and 3) the Palo Duro part of the Permian Basin in Texas.

I realize that a lot of qualifying statements were necessarily deleted to make the brief comparison in your letter, but wish to point out that -- at face value -- the statements of IV.b.1, 2, 3, and 5 (conditions that might lead to release) may apply to bedded salt or any other rock type. This is particularly true for IV. B.1 - shaft seal failure. Certainly, hydraulic head does increase with depth throughout the Gulf Interior Region (IV. B.2), but this is not unique to salt domes or to that region.

Your footnote on page 3 refers to the methods used for determining the hydrology of caprock as being unsatisfactory. I would appreciate hearing more about this aspect of the problem, including any efforts underway to improve the techniques.

Although I suspect that IV.B may not really be a matter of contention between us, Harry will contact you for further discussion of these items.

Thanks again for the very helpful comments on salt domes.

Sincerely,

Colin A. Heath, Director
Office of Waste Isolation
Nuclear Waste Management
  and Fuel Cycle Programs
Office of Nuclear Energy

Q5. On page 3 of your testimony you suggest that changes in the schedule mandated by S.1662 may be necessary. Please provide the Committee with a chart showing:

1) the schedule under S.1662

2) the schedule DOE would recommend; and

3) the impact of likely slippages due to uncertainties in site characteristics regulatory requirements, the "consultation and concurrence" provisions of the bill, and current practice with respect to technical, scientific and public review.

A5. 1) See attached chart.

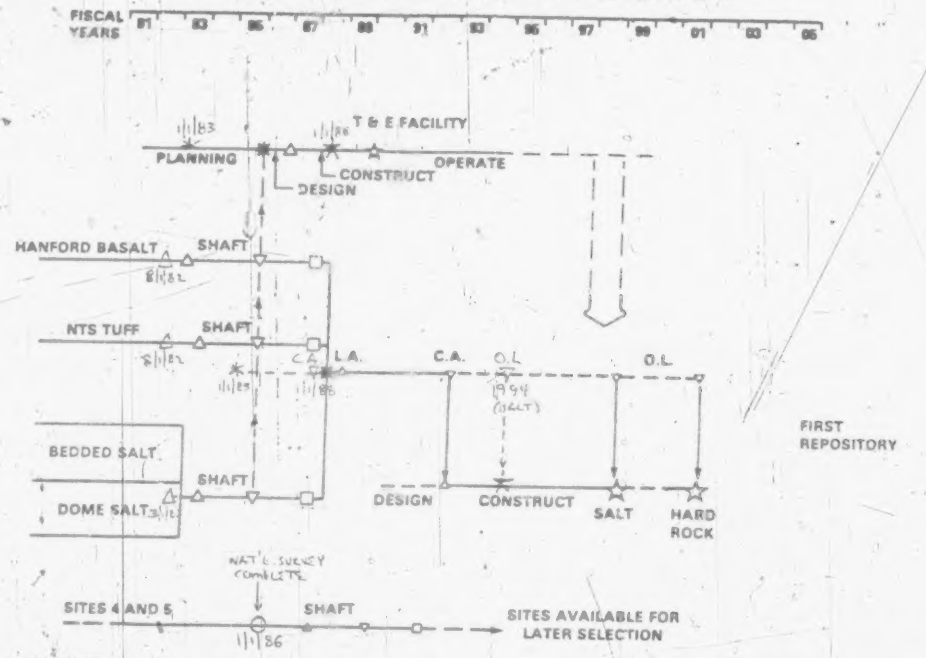
2) See attached chart.

3) The uncertainties in site characterization requirements and the "consultation and concurrence" provisions of the bill have a potential for causing the S.1662 milestones to slip.

The current DOE schedule reflects our experience over the last several years regarding such factors as (a) the time required to reach agreements with the states, (b) the time required to initiate and conduct geophysical tests such as borehole drillings and seismic tests (including time for contracting, obtaining land access and permits, etc [illegible] the time required to locate and evaluate existing data, and (d) [illegible]ts associated with above. The current schedule assumes that these processes run smoothly and that sufficient supporting resources are available. The S.1662 schedule will allow less time to accomplish these activities, thereby potentially affecting the quantity and quality of data and analyses which will result. This could in turn also impact our ability to work with NRC and the states and could complicate, rather than facilitate, these activities. In some cases, the S.1662 milestones would require renegotiating current agreements.

S.1662 COMPARISON

WASTE ISOLATION PROGRAM


FISCAL YEARS
81
83
85
87
89
91
93
95
97
99
01
03
05
1/1/83
PLANNING
DESIGN
1/1/86
CONSTRUCT
T & E FACILITY
OPERATE
HANFORD BASALT
8/1/82
SHAFT
NTS TUFF
8/1/82
SHAFT
1/1/85
C.A.
1/1/88
L.A.
C.A.
O.L.
1994 (SALT)
O.L.
BEDDED SALT
DOME SALT
3/1/82
SHAFT
DESIGN
CONSTRUCT
SALT
HARD ROCK
FIRST REPOSITORY
NAT'L SURVEY COMPLETE
SITES 4 AND 5
1/1/86
SHAFT
SITES AVAILABLE FOR LATER SELECTION

△ START
▽ COMPLETE
☆ STARTUP
☐ REPOSITORY SITE SUITABILITY DETERMINED
✱ SITE SELECTION

L.A. LICENSE APPLICATION
C.A. CONSTRUCTION AUTHORIZATION
O.L. OPERATING LICENSE

NOTE: SHAFT START DATES ASSUME 60-DAY PRESIDENTIAL APPROVAL
S.1662 DATES ALL SHOWN IN RED

Q6. What changes in regulatory requirements does DOE believe will be necessary in order to meet the schedules in S.1662? What changes in law would be necessary?

A6. Pending NRC regulations would need some amendment. One approach would be the following:

- delay the requirements for technical information so as to allow proceeding with site characterization (exploratory shafts included) and preliminary construction as soon as there is enough data to support a prudent decision to undertake activities not involving permanent emplacement of wastes.
- require a complete license application fully supporting the safety of engineered and natural (site geology) barriers only before initial emplacement of waste (that is, an operating license).

Amendments to Federal statute which would improve the likelihood of meeting the schedules in S.1662 include the following:

- Modify the S.1662 proposed bill to delay Presidential and Congressional involvement to the point at which a fully characterized site is recommended for a repository. Allow the Secretary to be the "arbiter" of any objections to the recommendation of candidate sites for site characterization (an exploratory shaft does not constitute a commitment to a repository at that site). Explicitly disallow any further encumbrance upon the activities of the program by any governmental body, beyond the requirements for DOE to consult with States.

Q7. What "fall-back" options would be available under S.1662 if major delays occur in selection of a site for a permanent repository? What fall-back options are available under existing law?

A7. As is stipulated in S.1662, the utilities have primary responsibility for interim storage of their spent fuel. Even under the schedule proposed in S.1662, if it were achievable, utilities could not begin to ship spent fuel to a repository until the mid-90's. Therefore, a backup option would also not be needed until that timeframe. By 1985, we would know whether any delays in the site selection would be significant enough to require the implementation of a backup option. At that point, there would be sufficient time to site, design and construct, a monitored, retrievable storage facility.

Extensive resource commitment to developing a fall-back option at this stage is also not consistent with our commitment to permanent disposal and the feasibility of geologic repositories. However, provisions for interim storage--perhaps for several years--would be appropriate in conjunction with design and development of both reprocessing and disposal facilities.

Q8. What are the chances under S.1662 that sites other than Hanford and the Nevada Test Site will be considered (for other than salt medium) for the first permanent repository? What are these chances under existing law?

A8. Senate Bill S.1662 requires that the Secretary identify and recommend at least two sites suitable for characterization by June 1, 1982 and a third site by January 1, 1983. There is no existing legislation that addresses when and how many sites will be considered for a permanent repository.

Assuming the term "characterization" in the proposed law means characterization by exploratory shaft, then it is extremely unlikely that any sites other than Hanford and NTS or a salt site could be considered for the first permanent repository.

A site other than Hanford and NTS will also be considered because 10 CFR 60 requires three candidate sites as a basis for the licensing review. Current compressed schedules under discussion with affected States place identification of the third site in May 1983. Advancing that date by 5 months will reduce the data available to support the decision. This third site will most likely be in one of those areas underlain by salt formations now under investigation in Utah, Texas, Louisiana and Mississippi.

Q9. How is the Department's decision on the sites for evaluation and characterization for a civilian high-level waste repository influenced by the potential that such actions will adversely impact on public support for essential DOE defense program activities such as reprocessing, waste storage and weapons testing? On public support for continued operation of commercial low-level waste sites?

A9. Department decisions on site evaluation and characterization for disposal of civilian high-level waste are fully compatible with defense program activities. The Department has taken responsible measures to assure the clear separation of the responsibilities of the two programs. Where potential conflict has arisen regarding proximity of operations, agreements and other administrative procedures have been established to prevent programmatic conflict. Where technology can be shared, technical working groups have been established.

The Department's program for high-level waste disposal should have no direct effect on the continued operation of commercial low-level waste sites. We believe that our policies and programmatic direction that emphasize safety and cooperation with local governments in decision-making has been a positive support to the commercial disposal of low-level waste.

Q10. Your testimony did not contain detailed comments on S. 1662 for the stated reason that it was recently introduced. However, since the stated purpose of the hearing was to review both S. 1662 and S. 637, why were no remarks prepared on S. 637, which was introduced on March 5, 1981? What are your detailed comments on the provisions in each section of S. 637?

A10. S. 637 provides for a high-level waste system that would include long-term disposal in a monitored, retrievable storage facility, and permanent disposal in a mined, geologic repository. If enacted, the DOE would be given authority to establish a Federal away-from-reactor program and substantial spending authorization to back up the program.

As we interpret S. 637, it would limit the definition of a "safe" repository to a natural or man-made tunnel or cavern in the side of a mountain. This definition appears to exclude underground geologic repositories and thus would be unacceptable to the Department.

With respect to Title III, the Department believes that the temporary storage of spent reactor fuel should remain the responsibility of utilities generating the fuel. Utility and industry efforts to provide the necessary facilities and services for this storage will be assisted by assurances that Government facilities for final acceptance of wastes will be available within a specified timeframe. Accordingly, we believe Title III and all further references to Federal provisions for interim spent fuel storage should be deleted.

With respect to Title IV, we consider the S. 637 approach to developing monitored retrievable storage and respository facilities less desirable than the approach taken in S. 1662 for several reasons. The focus in S. 637 is on the preparation of a proposal leading to the development of these facilities. S. 1662 on the other hand provides specific guidance on repository development starting with preliminary siting studies and continuing through to repository construction. Included in this guidance are provisions for Federal interactions with States and Tribal governments concerning major repository development decisions. While taking exception to some of the S. 1662 milestones, we consider the overall S. 1662 approach to be clearer and more consistent with current Department planning.

The financing provisions of Title V of S. 637 would be helpful, but again we find the S. 1662 provisions preferable. S. 1662 contains provisions for early collection of revenues for deposit into a Treasury fund. S. 637 appears only to allow borrowing from the Treasury to obtain early funds.

Senator Domenici
- Additional Question -

Q1. In what ways are the functions of the Climax facility duplicative of those planned for the Test and Evaluation Facility. Could the Climax facility be modified to perform the planned functions of the Test and Evaluation Facility? Could this be done in time to permit the resulting data to be submitted in support of the DOE's application for authorization for construction to the NRC?

A1. The Climax Spent Fuel Test Facility at the Nevada Test Site (NTS) does not duplicate the Test and Evaluation Facility (TEF). The Climax Facility involves the emplacement in a non-prototype fashion of eleven encapsulated spent fuel assemblies to evaluate the effects of heat and radiation on granite. The TEF will involve emplacement of a few hundred multi-barrier packages of waste (e.g., solidified high-level waste). The rate of packaging, emplacement, backfilling, and retrieval under actual radioactive conditions with prototypic equipment and processes will provide verification of repository design and operations (e.g., the number of waste packages that can be handled by a single shaft, associated loading and off-loading equipment, and transport and emplacement/retrieval equipment; occupational exposure data to confirm adequacy of the shielding designs).

The Climax Facility could not be designed to accomplish the functions of the TEF. The amount of granite available at the site will not allow sufficient underground expansion necessary for the TEF. The existing canister emplacement shaft is unsuitable for use in the TEF. Also, with the location of the Climax Facility in a weapons testing area, the Department would not be willing to commit the necessarily large resources to a long-term project like the TEF.

The availability of data resulting from the TEF at the time the Department submits a license application to NRC for repository construction is not necessary, as long as the data is gathered during the several years of licensing review by NRC.

Q2. If such factors as those referred to in Section 408(c) of the National Site Survey Program were included in the initial search for the first three potential repository sites, would the ability of DOE to meet the mandated schedule of site recommendations in S.1662 be affected? What changes would be required in that schedule? If such criteria were applied and the number of sites for recommendation to the President were five instead of three, how soon could the additional two sites be identified?

A2. The factors referred to in Section 408(c) are the costs and impacts of transportation and the advantages of regional distribution of repositories. The mandated schedule in S.1662 applies only to the first repository and would preclude the consideration of sites which are not in the advanced screening stage.

If the search for two additional sites were authorized in FY 1983 with additional funds, the Department believes the two sites could be identified by 1987. If more than one repository is desired, and if additional repositories are to be sited regionally, this should be clearly embodied in the legislation.

Senator Simpson
- Additional Questions -

Q1. What amount of delay would occur in the development of a high-level waste repository if technical considerations ultimately preclude selection of any of the three sites DOE is currently considering for this repository?

A1. Information to date indicates favorable characteristics of the three sites. Department estimates indicate that additional sites can be characterized in detail, including exploratory shafts and testing at-depth, such that a repository site suitability determination can be made in the 1991 timeframe. This is four years later than the schedule planned for the first three sites. Depending on if and when one or more of the three sites is determined to be technically unsuitable for site characterization, some acceleration of the schedule is possible. Thus, a delay of up to four years can be expected for the first repository if one of the first three sites is judged technically unsuitable for site characterization.

Under current budgetary restraints, there are not sufficient resources to fund this additional effort. However, such an effort would be needed to support a regional repository approach in the long term, and to provide necessary backup should one of the early sites prove unsuitable. The funding mechanism as proposed in S.1662 would support a broader based program.

Q2. If a high-level waste repository is to be located on federal land managed by the Bureau of Land Management, would any Congressional action be required before construction of the repository is initiated?

A2. Congressional action will most likely be required prior to repository construction on Federal land managed by the Department of Interior. The surface and subterranean rights of any selected site must be acquired fee simple or permanently withdrawn for this specific use before facility construction can commence. Dedicated Federal ownership of subsurface (and perhaps surface) rights for a repository could range up to 20,000 acres to allow for a buffer zone to protect site integrity. The actual amount of area affected will be site-specific.

Withdrawal of land managed by the Secretary of Interior is controlled by the Federal Land Policy and Management Act of 1976. The Secretary of Interior can withdraw land up to 5,000 acres for various periods of time depending on the land's proposed use. Land areas exceeding 5,000 areas can be withdrawn by the Secretary of Interior for not more than 20 years, although Congressional action is also required. Permanent withdrawal of the Bureau of Land Management land would require Congressional legislation.

Department of Energy
Washington, D.C. 20585

December 4, 1981

Honorable Gary Hart
Committee on Environment and
  Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Hart:

Enclosed are answers to your questions 1 through 14, with the exception of answers 5 and 7 which are classified and are being sent separately. These are questions you submitted to Shelby T. Brewer, Assistant Secretary for Nuclear Energy, following the October 6, 1981, hearing before the Energy and Natural Resources Committee and the Environment and Public Works Subcommittee on Nuclear Regulation.

If you have any questions, please call Hank Edler or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

Thomas H Pretorius
for Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosures

cc: Mr. Al Astrin
Energy and Natural Resources
  Committee Staff

Additional Questions for Shelby T. Brewer, Assistant Secretary for
Nuclear Energy, Department of Energy
From Senator Gary Hart
Pursuant to Nuclear Waste Hearings
October 5 and 6, 1981

Q. 1. How much, if any, spent reactor fuel does the Department of Energy currently expect to dispose of in a geologic repository?

A. 1. The Department expects commercial reprocessing operations to eventually use all but a small, undefinable fraction of the country's spent nuclear fuel. Ultimately the amount of spent fuel which could be disposed of would be determined by reprocessing requirements for both breeders, and, conceivably, light water reactor recycle, and the availability of sufficient reprocessing facilities to meet these requirements and reduce current inventories of spent fuel. If commercial reprocessing were not to become a reality, then all the spent fuel discharged from reactors would go to a repository. The Department's 1981 report on spent fuel storage (DOE/SR-0007) estimated cumulative reactor discharges through 2000 at close to 255,000 assemblies or 72,000 metric tons of heavy metal.

Q. 2. Do you consider reprocessing of commercial spent reactor fuel an essential element of a national nuclear waste disposal program? Please explain.

A .2. No. As part of the NRC Waste Confidence Rulemaking proceeding, the Department has testified that spent fuel can and will be safely disposed of. Therefore, reprocessing is not essential for the nuclear waste disposal program. On the other hand, the Department believes that reprocessing results in an improved waste form which can be especially conditioned for disposal. Therefore, solidified waste from reprocessing is preferred.

Q. 3. If private industry declines to reprocess spent reactor fuel as a commercial enterprise, for economic or other reasons, would the Department or its contractors reprocess commercial spent reactor fuel?

A .3. The current national policy is that it is not appropriate for the Federal Government to enter into the reprocessing of commercially-generated spent fuel.

Q. 4. What does the Department plan to do with any plutonium separated from the reprocessed commercial spent reactor fuel? If it intends to stockpile the plutonium, how will it ultimately use the stockpiled plutonium? How long will the stockpiling of plutonium last? How much will stockpiling and safeguarding the plutonium cost? Who will pay that cost?

A. 4. At the present time, the Department of Energy (DOE) has no firm plans to acquire plutonium separated from reprocessed commercial spent reactor fuel. If, at some time in the future, DOE were to obtain such plutonium, it probably would use the plutonium for the breeder reactor program.

DOE has no plans to "stockpile" plutonium separated from reprocessed commercial spent reactor fuel. If DOE were to acquire such plutonium, it probably would maintain only a nominal inventory to meet firm near-term requirements. As noted above, the most likely use for that plutonium would be the breeder reactor program.

If DOE were to acquire plutonium separated from reprocessed commercial spent reactor fuel, it would maintain a nominal inventory of that plutonium as long as requirements existed which could not be satisfied from DOE's own reactors (both production reactors and breeder reactors). Based on the uncertainty of requirements, it is not possible to estimate how long DOE might maintain a small inventory of plutonium.

It is very difficult to estimate how much "stockpiling" of plutonium would cost because of the uncertainty associated with the quantities to be "stockpiled" and the method of acquisition, i.e., from a commercial enterprise or as a result of processing in DOE facilities. The annual cost of safeguarding "stockpiled" plutonium would be nominal since DOE must fully retain full qualified plutonium storage facilities to carry out the existing national defense mission and the reactor research and development program.

The cost of "stockpiling" and safeguarding plutonium separated from reprocessed commercial spent reactor fuel would be borne by DOE, assuming that DOE was the customer for that plutonium.

Q. 5. Please provide the Department's projected plutonium requirements for civilian nuclear research and development purposes, and the amount it expects to receive from current sources of supply for each year during the period 1981-2010.

(a) For each of these years, how much plutonium will the Department need for the Fast Flux Test Facility?

(b) For each of these years, how much plutonium will the Department need to fuel the Clinch River Breeder Reactor, assuming it is built and licensed as planned by the Department?

(c) For each of these years, how much plutonium will the Department need for other research and development purposes?

(d) For each of these years, please list the sources that will supply the plutonium the Department expects it will need for civilian research and development purposes, including the amount it expects to recover from scrap and from reprocessing the N reactor spent fuel and to allocate from existing stocks of recovered plutonium.

(e) What is the total inventory of plutonium available for civilian research and development purposes at this time?

A.5. The answer to the question is classified and has been forwarded to you separately.

Q. 6. If commercial spent reactor fuel were to be reprocessed for use in the Department's breeder program, would IAEA safeguards apply to such reprocessing activities? If not, why not?

A. 6. If the commercial spent reactor fuel were to be reprocessed in commercial reprocessing facilities not handling classified fuels, International Atomic Energy Agency (IAEA) safeguards would apply, subject to the terms of the US-IAEA voluntary safeguards agreement. If the spent fuel were to be reprocessed in Department of Energy (DOE) facilities, IAEA safeguards would apply only if those facilities were not directly related to national defense activities. This approach is consistent with our IAEA agreement. IAEA safeguards would not apply to any DOE facilities related to classified operations.

Q. 7. Please summarize the status of the Department's current program to develop Laser Isotope Separation (LIS) technology, and its plans to use this technology to obtain plutonium for the nuclear weapons program from reprocessed commercial spent reactor fuel.

In particular, please provide a schedule of:

(a) milestones for the LIS program, including capital and operating costs; and

(b) the quantities and sources of any commercial spent reactor fuel that the Department will use in this program.

A.7. The answers to these questions are classified and they are being forwarded separately.

Q.8. On July 9, 1981, Deputy Secretary of Energy Kenneth Davis testified before the House Committee on Interior and Insular Affairs that reprocessing of spent reactor fuel would form the cornerstone of the Administration's commercial nuclear waste management program. On October 8, 1981, President Reagan announced a nuclear energy policy that encourages the private sector to assume the responsibility for reprocessing commercial spent fuel.

(a) Are these positions consistent? Please explain.

(b) Would reprocessing of commercial spent reactor fuel still form the cornerstone of the Administration's nuclear waste management program if the private sector refuses to assume the responsibility?

A. (a) These positions are consistent. The statement by the Deputy Secretary reflects the philosophy that reprocessing is desirable and can serve as the cornerstone of the Administration's fuel cycle and waste management programs because it can provide the following benefits:

(1) relieves spent fuel congestion at U.S. utilities

(2) provides plutonium for the breeder program

(3) provides a preferred waste form which can be tailored for disposal

(4) recovers unused resources in spent fuel

(5) enhance U.S. influence on international nuclear commerce

President Reagan's announcement reiterated the desire for reprocessing. It simply went further than the Deputy Secretary's statement by identifying who would be responsible for initiating the reprocessing of commercial spent fuel.

(b) Because of the long lead time required before an operating repository will be available, and because most of the fuel discharged from reactors will be stored on site, there is ample time for issues associated with the economics of reprocessing to be resolved before deciding whether or not to dispose of spent fuel.

Q.9 (a) Please provide a schedule of capital expenditures and operating costs associated with the Test and Evaluation (T&E) facility proposed by the Department.

A.9 (a) The scope of activities to be conducted in the T&E facility is presently under development and a significant range of activities are being considered. A reliable cost estimate for such a facility, and, therefore, a schedule of capital expenditures and operating costs is currently not available. However, a preliminary estimate, based on our current experience with underground test facilities and early conceptual design studies for full-scale repositories, could range between $150M and $250M depending on site-specific characteristics and the scope of test activities in the facility. A definitive cost will be developed in FY 1982.

Q.9 (b) Where would the T&E facility be located?

A.9 (b) The Department currently plans to select the site for the T&E facility in September, 1985. The site for this facility most likely will be selected from the three potential repository sites now being focused on in the National Waste Terminal Storage program. These three sites are the Hanford Site (basalt) in Washington, the Nevada Test Site (tuff), and a salt site to be identified in 1983. The candidates for the salt site include the Paradox Basin in Utah, Permian Basin in Texas, and the Gulf Interior Region salt domes in Louisiana and Mississippi.

Q.9 (c) What is the Department's current schedule for development and operation of the T&E facility?

A.9 (c) The Department's current schedule for the T&E Facility is: (1) select the site and initiate site-specific detailed design, 1985; (2) initiate construction of the facility, 1986; and (3) complete construction and initiate waste emplacement operations, 1989. The Department currently anticipates the test program at the T&E facility would continue at least until the operating license for the first full-scale repository is received from the NRC.

Q.9 (d) Will the T&E facility become a full-scale geologic repository? Please explain.

A.9 (d) There are no current plans to expand the T&E Facility into a full-scale repository, although the option to do so must be preserved. Such plans would only be developed if the results of the site characterization work to be conducted at depth at the site, as well as similar work at the other candidate repository sites, indicates that the T&E facility site is preferred for siting of a licensed repository.

Q.9 (e) Please identify the specific information the Department hopes to obtain from the T&E facility. In what ways would the activities carried on at the T&E facility duplicate or complement the Department's ongoing nuclear waste R&D activities, including those at the Waste Isolation Pilot Plant, the Nevada Test Site, and the Hanford Reservation? In what ways would the activities carried on at the T&E facility duplicate or complement the generic nuclear waste R&D activities at Stripa, Sweden and Avery Island, Louisiana?

A.9 (e) The purpose of the T&E Facility is to permit testing of the operating characteristics of a repository using actual radioactive waste. Although the test program to be conducted in the T&E facility has not been entirely established at this time, the types of information to be gained would include:

- Evaluation of techniques and confirmation of the design of equipment for handling, emplacing, and retrieving various types of multi-barrier waste packages. This evaluation includes demonstration of in-situ fabrication/assembly of waste package components.
- Development of a data base on and techniques for control of occupational radiological exposures associated with repository operations.
- Confirmation of designs for repository ventilation systems, including the effectiveness of emplacement and excavation ventilation system separation.
- Confirmation of designs for instrumentation, monitoring, and control systems.
- Evaluation of equipment performance, reliability, and maintenance requirements.
- Development of bases for scaling up to full repository operations, including verification of repository handling rates.

The activities to be carried out at the T&E facility would focus and replace many of the test activities now being conducted or planned at Avery Island, Stripa, Hanford or the Nevada Test Site. The field testing activities conducted at Avery Island, Stripa, Hanford, and Nevada Test Site provide media-specific data necessary to determine generic suitability of host rocks for a repository and to develop technology supporting the licensing of a repository. These activities will generally precede and do not duplicate the plans for the T&E facility. The T&E facility represents the engineering phase in the evaluation and verification of the concepts and the containment features in order to license, construct, and operate a full scale repository. WIPP is authorized as an R&D facility to demonstrate the safe disposal of defense wastes.

Q.9 (f) Could the Department carry out the nuclear waste R&D activities planned for the T&E facility at the Waste Isolation Pilot Plant?

A.9 (f) It is expected that the results from the R&D activities on radioactive wastes resulting from defense activities and programs of the United States associated with the WIPP site will be fully coordinated with the commercial waste program to avoid any undesired duplication.

Q.10. Title V of the proposed National Nuclear Waste Policy Act of 1981 (S. 1662) directs the Secretary of Energy, within one year after enactment, to transmit to the Congress a proposal for a long-term retrievable monitored storage facility for high-level waste and commercial spent reactor fuel. The proposal must include, among other things, "site-specific designs, specifications, and cost estimates adequate to solicit bids" for the facility.

(a) To comply with this requirement, will the Department have to select a specific site for constructing such a facility? Please explain.

A.10. The bill requires "...site-specific designs, specifications, and cost estimates adequate to select bids for the construction of an initial (MRS) facility..." If this provision is enacted, then a specific site must be selected to comply with it. It is not feasible to complete such activities within the one year allowed in the bill. It would also take nine months to one year just to solicit bids from and select an architect-engineering firm to prepare the necessary designs and an additional two years to complete the actual detailed design specifications and drawings required for solicitation of bids for facility construction.

In addition to the A-E selection process and development of detailed site-specific specifications, two years would be required to identify and select a specific site for a MRS facility. This would include:

- development of detailed siting requirements and criteria
- a thorough analysis of potential sites proceeding from a national perspective, through regional and area reviews, to actual sites for consideration in the final selection process
- coordination of activities with states in which potential sites for an MRS facility are located.

These and other factors would extend beyond the one year limitation contained in the bill.

Q.10.(b) Does the Department interpret this title, along with the other provisions in the Act, as requiring participation by a potential host state or an affected Indian tribe in the selection of a site for such a facility? Please explain.

If so, can the Department ensure that a potential host state or affected Indian tribe will have a meaningful opportunity to participate in site selection decisions, particularly if the Department has to submit site-specific designs, specifications, and cost estimates to the Congress within one year after enactment?

A.10.(b) The Act specifically gives the affected state and Indian tribe the right to participate and authorizes the Secretary to establish cooperative agreements with each affected state and Indian tribe. The Department would continue to consult with potential host states and Indian tribes on site and other program studies, especially where they relate to the health and safety of the public. However, state and Indian tribe participation or coordination on site-specific designs or other technical matters can be a long and slow process, based on experience to date, and could adversely impact program schedules.

Q.10.(c) Should the same provisions for state and Indian tribe participation in decisions leading to construction of a full-scale geologic repository also apply to a long-term retrievable monitored storage facility as provided for in Title V?

A.10.(c) The department believes that any long-term monitored storage facilities will be co-located with reprocessing facilities or repositories. The provisions for state and Indian tribe participation in decisions on siting of repositories or reprocessing facilities would also apply to the co-located storage facilities.

Q.11. Has the Department ever independently evaluated the ability and needs of specific utilities to provide additional storage capacity for spent reactor fuel either through maximization of storage capacity within existing on-site facilities or construction of new storage capacity (i.e., not relied on a utility's stated plans for providing additional storage capacity)? If not, why not?

A.11. The Department uses basic information provided by utilities in arriving at its storage requirements projections but subjects this information to independent review, analysis, and differing assumptions. Pool dimensions have been used to perform an analysis of the maximum amount of fuel that could be fitted into the basin area based on criticality considerations. Unfortunately, it is often pool structure rather than criticality which limits the amount of fuel which can be stored. The analyses needed to arrive at conclusions based on structural limits are reasonably complex and we believe that the data being furnished by the utilities in regard to pool structural capability is accurate. Almost all have reracked once and that process revealed the structural capability. In a few cases independent analyses are confirming the original analyses. In addition, all economic analyses indicate that maximum reracking of the reactor pool is the most economical method to use. Therefore, we have no reason to doubt information on structural limitation conveyed by the utilities.

With regard to new storage capacity, the Department has always assumed that utilities have the technical and physical ability to provide storage for themselves outside the reactor buildings. The only questions have been over timing and economic feasibility for water basins and over licensing of dry storage options. Our analysis of the licensing and construction process leads us to believe that utilities having needs prior to 1989-1990 do not have time to use newly constructed water basins. We are working closely with those utilities which have needs prior to 1990 in an effort to help them overcome any licensing difficulty involved with applying dry storage techniques outside the reactor building or using rod consolidation techniques in the existing pool.

Q.12.(a) What is the Department's current estimated cost for constructing and operating either a new centralized AFR facility or new regional AFR facilities? Please translate these estimates into dollars per kilogram of spent fuel and into mills per kilowatt-hour for those utilities that may seek to use these facilities.

A.12.(a) As shown in the attached table, the Department has estimated the cost of providing transportation and away-from-reactor (AFR) services for 2800 MTU of spent fuel to be about $480 million in 1981 dollars. This is approximately equal to $173/kilogram or 0.71 mills/kilowatt-hour and would cover activities between 1982 to 1992. These cost estimates are for the AFR services described in Title III of S. 1662 and are based upon the use of storage-only containers currently being developed.

Attachment

AWAY-FROM-REACTOR STORAGE FACILITY COSTS

(1981 Dollars)

Calendar Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Cumulative Spent Fuel Requirements (MTU)[1]	0	0	0	0	120	390	620	1240	1800	2300	2800
Annual Spent Fuel Requirements (MTU)[1]	0	0	0	0	120	270	230	620	560	500	500
Storage Container Capital Costs ($ millions)[2]	0.0	0.0	0.0	8.1	18.2	15.5	41.9	37.8	33.8	33.8	0.0
Storage Facility Capital Costs ($ millions)[3]	2.1	4.7	4.1	10.9	9.9	8.8	8.8	0.0	0.0	0.0	0.0
Container and Facility Operating Costs ($ millions)[4]	0.0	0.0	0.0	0.0	2.0	4.5	3.8	10.2	9.2	8.3	8.3
Transportation Costs ($ millions)[5]	0.0	0.0	0.0	0.0	2.4	5.4	4.6	12.4	11.2	10.0	10.0
Business Operations and Licensing Costs ($ millions)	11.0	24.0	18.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Annual Costs	13.1	28.7	22.1	30.0	43.5	45.2	70.1	71.4	65.2	63.1	29.3
Cumulative Costs	13.1	41.8	63.9	93.9	137.4	182.6	252.7	324.1	389.3	452.4	481.8

[1] DOE/SR-0007, March 1981, Planning Base Case

[2] Container unit capital cost = $67,500/MTU

[3] Facility unit capital cost = $17,600/MTU

[4] Unit operating cost = $16,500/MTU

[5] Only includes transportation costs to the AFR facility.

Q.12.(b) What is the Department's current estimated cost for acquiring and modifying the storage facilities at Morris, IL, Barnwell, SC, and West Valley, NY, for Federal AFR facilities? Please translate these estimates into dollars per kilogram of spent fuel and into mills per kilowatt-hour for those utilities that may seek to use these facilities.

A.12(b) The Army Corps of Engineers has recently completed an appraisal of the facilities located at Morris, IL, Barnwell, SC, and West Valley, NY. Although these appraisals do not include any modification costs, the Department has estimated the cost of reracking these facilities to provide additional storage capacity. All these estimates are given below in 1981 dollars.

Facility	Reracked Available Capacity (MTU)	Estimate Of Facility Value ($ Millions)	Rerack Cost ($ Millions)	Total Cost ($Millions)	Unit Cost	
					$/Kg	Mills/Kwh
Morris	750	36	12	48	64	0.26
Barnwell	1750	300	24	324	185	0.76
West Valley	1500	7	16	23	15	0.06

Q.12.(c) What is the Department's current estimated cost for constructing and operating an additional pool at the power plant site for storing spent reactor fuel? Please translate this estimate into dollars per kilogram of spent reactor fuel and into mills per kilowatt-hour for those utilities that may need to construct additional on-site pools.

A.12.(c) The Department currently estimates that it would cost about $345 per kilogram or 1.41 mills per kilowatt-hour to construct and operate an at-reactor water basin. For example, a large at-reactor basin of 1000 MTU capacity would cost $345 million.

Q.12.(d) What is the Department's current estimated cost for constructing and operating at a power plant site a facility for dry storage of spent reactor fuel, particularly those of the type under review by the Nuclear Regulatory Commission or the Tennessee Valley Authority? Please translate this estimate into dollars per kilogram of spent reactor fuel and into mills per kilowatt-hour for those utilities that may need to use dry storage facilities.

A.12.(d) The Department has estimated the cost of constructing and operating four types of at-reactor dry storage facilities. These dry storage modes are cask, drywell, silo, and vault storage. The unit cost estimates for unconsolidated and consolidated fuel are given below in 1981 dollars.

	Unit Cost Using Unconsolidated Fuel		Unit Cost Using Consolidated Fuel	
	($/kg)	(mills/kwh)	($/kg)	(mills/kwh)
Cask	117	0.48	110	0.45
Drywell	137	0.56	112	0.46
Silo	160	0.65	131	0.53
Vault	422	1.72	300	1.22

The total cost can be obtained by multiplying the desired facility capacity by the unit cost.

Dry storage is attractive because it offers a passive, low maintenance system for fuel that has been out-of-reactor for as little as 1 year. Modular dry storage systems, such as cask drywells and silo, also offer the economic advantage of providing storage in small increments, thereby avoiding large initial capital outlays. The use of rod consolidation in conjunction with these modular dry storage systems could reduce costs by decreasing the amount of casks, etc., that are needed.

Q.12.(e) What is the status of the Deparment's negotiations with the owners of the reprocessing plants at Barnwell, SC, and Morris, IL, to use the storage capacity at those plants for Federal AFR storage?

(1) Given the Administration's opposition to a Federal AFR storage program, has the Department terminated those negotiations?

(2) Will the owners of those reprocessing plants make their spent fuel storage capacity available for Federal AFR storage without requiring the Federal Government to purchase the entire reprocessing complex?

(3) How much would the Department expect to pay to:

(i) Lease or purchase only the spent fuel storage capacity of these plants; and

(ii) Purchase the entire reprocessing complex?

A.12 (e) (1) At the request of Congress the Department held discussions with the owners of existing storage sites in late 1980. This information was sent to Congress in January 1981 and was reported on in DOE/SR-0008, "Report on Discussions With Owners of Potential Spent Fuel Storage Facilities." These discussions have terminated and no negotiations have been held.

(2) In response to a question in late 1980 and reported to Congress in DOE/SR-008, the owners of the Barnwell facility said they would not make their storage facility available without total Federal purchase. The owners of the Morris facility also included the entire reprocessing plant in both their options for purchase. Thus, neither owner would consider selling part of the building. The State of New York's position in opposition to the use of the Western New York Nuclear Service Center for fuel storage under any circumstances is well known.

(3) The owners of Barnwell and the Morris operation stated that they would not consider an arrangement other than purchase; i.e., not leasing, and that as noted above they would only consider selling the entire plant. As noted above, the Corps of Engineers estimate for the fair market value for use as an AFR of the Barnwell facility is $300 million; the Morris operation, $36 million; and the Western New York Nuclear Service Center, $7 million. Different perspectives on acquisition costs and the owners' viewpoints are given in the report on discussions, DOE/SR-0008.

Q.12.(f) Please provide specific estimates of:

1) The quantities of spent reactor fuel that would be shipped to one or several Federal AFR storage facilities, for each year during the useful life of such facilities, given various reasonable estimates of demand for Federal AFR storage capacity; and

2) The distances that the quantities of spent fuel estimated under 1) would be shipped?

A.12.(f) 1) The following table presents the Nation's spent fuel storage requirements as reported in DOE/SR-0007, "Spent Fuel Storage Requirements," March 1981. These storage requirements represent the additional storage capacity that must be provided to enable continued reactor operation and are based on the following assumptions:

Upper Bound:	Current utility plans for pool capacity increases No transshipment except where licensed by the Nuclear Regulatory Commission On-site transfers as planned Full core reserve capacity maintained
Planning Base:	Pool capacities increased to maximum No transshipment except where licensed by the Nuclear Regulatory Commission On-site transfers as planned Full core reserve capacity maintained
Lower Bound:	Pool capacities increased to maximum Intra-utility transshipments On-site transfers as planned Full core reserve capacity maintained

A.12.(f) 1) [continued]

Spent Fuel Storage Requirements
(MTU)

	Upper Bound		Planning Base		Lower Bound	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	50	50	0	0	0	0
1986	290	340	120	120	0	0
1987	480	820	270	390	100	100
1988	410	1,230	230	620	190	290
1989	860	2,090	620	1,240	310	600
1990	810	2,900	560	1,800	260	860
1991	810	3,710	500	2,300	410	1,270
1992	1,290	5,000	880	3,180	610	1,880
1993	1,490	6,490	930	4,110	710	2,590
1994	1,420	7,910	950	5,060	740	3,330
1995	2,120	10,030	1,420	6,480	1,110	4,440
1996	2,140	12,170	1,520	8,000	1,290	5,730
1997	2,050	14,220	1,540	9,540	1,520	7,250
1998	2,470	16,690	1,950	11,490	1,930	9,180
1999	2,650	19,340	2,320	13,810	2,220	11,400
2000	2,520	21,860	2,200	16,010	2,240	13,640

These requirements are being updated and the new values will be available in early 1982.

2) The actual distance the spent fuel would be shipped depends, of course, upon the location of the AFR storage facility. The Department has assumed an average distance of 1,000 miles for all its calculations.

Q.13 Please provide the Department's position on whether its nuclear waste management program should include one or several long-term retrievable monitored storage facilities, as described in Title V of S. 1662. Please provide a description and estimated cost of such a facility.

A.13 The Department's position on nuclear waste management is that it remains committed to providing deep geologic repositories for the permanent disposal of high level radioactive wastes at the earliest possible time and does not consider monitored retrievable storage (MRS) an appropriate substitute for this disposal. A formal record of this decision by the Department was published in the Federal Register on April 16, 1981. The study of the monitored retrievable storage concept conducted during FY 1981 has not revealed any basis for changing that decision.

The report examined several potential roles for an MRS system. First, an MRS facility could function as an away-from-reactor storage facility. Second, an MRS facility could be used to allow high-level waste to "cool" for about 100 years prior to disposal. Finally, an MRS facility could be used as an "actively managed" permanent disposal facility. While these concepts may be technically feasible, the Department does not endorse the use of any of these approaches by the Federal Government at this time. The Department believes that any interim storage of spent fuel prior to disposal should be the responsibility of the utilities. As directed by the President, the Department is currently examining ways to encourage private reprocessing of spent nuclear reactor fuel.

The costs of monitored retrievable storage facility vary with the concept, the capacity, etc. The costs range from $250 million to $750 million for each such facility. However, three such facilities may be required to meet the spent fuel demands for the life of the operating reactor.

Q. 14. Please list the nuclear waste management and disposal activities planned for both the civilian and defense nuclear waste programs along with their respective estimated costs.

Please identify which activities, if any, will be duplicated in the two programs and the estimated cost of that duplication.

A.14.

	($ in Millions)	
	FY 1981	FY 1982
Defense Nuclear Waste		
Interim Waste Operations	$ 174.4	$ 250.5
Long-Term Waste Management Technology	90.0	72.0
Terminal Storage	20.0	48.7
Transportation R&D	7.0	6.9
Decontamination and Decommissioning	4.1	10.3
Program Direction	1.7	1.6
Total Defense Nuclear Waste	297.2	390.0
Commercial Waste Management		
Commercial Nuclear Waste		
Terminal Isolation	173.2	180.9
Waste Systems & Evaluation	3.0	2.7
West Valley	5.0	9.8
Program Direction	1.9	2.6
Subtotal	183.1	196.0
Remedial Actions		
MED/AEC Sites	11.0	11.3
Grand Junction	2.0	1.5
Mill Tailings	13.2	20.9
Surplus Facilities	16.6	12.0
Program Direction	0.3	0.3
Subtotal	43.1	46.0
Nuclear Fuel Cycle		
Spent Fuel Technology	20.0	6.3
Fuel Reprocessing R&D	47.5	25.4
Waste Treatment and Storage Technology	19.9	12.7
Program Direction	1.0	1.1
Subtotal	88.4	45.5
Total Commercial Waste Management	$ 314.6	$ 287.5

There are no duplicative activities being accomplished. However, some activities underway in one program will benefit the other program. These activities fall into generally two areas-research and development in support of nuclear waste repositories and technology development activities to support development of waste treatment and immobilization processes.

In the nuclear waste repository area, the Terminal Isolation Research and Development program under civilian activities will support the development of a repository for high level waste. As discussed in Question 9(e), the Waste Isolation Pilot Plant under the Defense Terminal Storage program will provide complementing data from research and development efforts to demonstrate disposal of radioactive waste from Defense activities.

A. 14 (continued)

Long-term technology development efforts in the Defense Nuclear Waste program will also assist in meeting the needs of the Commercial Waste Management program. Specifically, the technology for the development of treatment and immobilization processes for all waste types (Airborne, High-level, Transuranic, and Low Level) will have significant technology transfer benefits to the Commercial program. For example, the West Valley Solidification program under the Commercial program will probably use one of the high-level waste forms being developed for solidification of high level wastes at Savannah River under the Defense program.

Other areas of technology transfer, including improved burial techniques for DOE Defense Low-Level Waste and assaying and sorting techniques to reduce the volume of waste currently being classified as transuranic waste, will also have direct benefit to commercial waste activities.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CHAIRMAN

OCT 27 1981

The Honorable James A. McClure, Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

We are pleased to submit responses to additional questions for the record from the October 6, 1981 hearing on proposed high-level waste legislation. I hope you will find these responses adequate for your purposes, but if you need additional information or clarification, please let me know.

Sincerely,

Nunzio J Palladino

Nunzio J. Palladino

Enclosure:
Responses to Questions on Proposed
high-level waste legislation

Question 1. Testimony provided by Chairman Palladino on October 6, 1981, to the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation regarding Senate Bill 1662 implies the NRC could relax slightly the time for processing an application for a construction authorization for a high-level waste repository if it had a complete application from DOE. Chairman Palladino's testimony further indicated concern whether DOE had sufficient time to prepare an adequate license application. To what degree could NRC relax its time frame for processing the application to allow more time for DOE to prepare the application? How much additional time should be provided to DOE for this purpose beyond that provided now in S. 1662?

Answer:

NRC did not intend to leave any impression that the time for processing an application for repository construction authorization could be "relaxed" if we had a complete application from the Department of Energy (DOE). Commission Chairman Palladino's testimony on S. 1662 said that the NRC would do everything in its power to avoid delaying the national program. Past NRC staff estimates have concluded that construction authorization proceedings would require a minimum of four years, and the testimony pointed out that the bill's goal would be "very difficult" to achieve in the two years and 9 months allowed for construction authorization proceedings under this bill. The testimony went on to say that under such a tight time frame, it becomes extremely important that we receive a complete license application from DOE containing all the information we will need to resolve the issues in dispute. We thus intended to make it clear that if we are to avoid delaying the national program, we could not afford to lose any of the time available to us for processing an application. We wanted to point out, however, that DOE may need more time to do the necessary research and analysis in order to develop adequate information needed to resolve the issues in a licensing proceeding.

We are uncertain as to how much time can be shortened from the DOE plan discussed by Mr. Brewer in his testimony. We are somewhat skeptical that DOE can shorten the program very much and still do the technical job required for an adequate license application. We will work with DOE to assist them in evaluating what can be done.

Question 2. What is the Commission's position on EPA proposing guidelines for site selection of a high-level waste repository? Are such guidelines needed in addition to environmental standards?

Answer:

We understand that EPA, pursuant to the reorganization plan No. 3 of 1970,(35 FR 15623) 84 STAT 2086) is working on two HLW products. They are working to develop generally applicable standards for protection of the general environment from HLW at geologic repositories. The Commission supports and urgently needs these standards. Under authority of the Federal Radiation Council, transferred to EPA by the reorganization plan, EPA is also developing guidelines for all Federal agencies with respect to HLW repositories. These guidelines appear to be redundant with the NRC's proposed regulation 10 CFR 60 and could be eliminated.

Question 3. EPA, in its testimony on October 6, proposed modifying the provision in S. 1662 for the preparation of environmental standards by EPA. Under the EPA proposal, EPA would issue proposed standards and guidelines on January 30, 1982, and final standards and guidelines one year thereafter. How would this formulation affect NRC's ability to develop final technical criteria within the time schedule provided in S. 1662? Would proposed EPA standards be a sufficient basis for NRC to proceed with developing the final technical criteria?

Answer:

Basically, we believe that the EPA proposal would not seriously affect our time schedule for promulgating the final technical rule, as long as EPA makes no major changes in direction. Our proposed technical rule has been based on EPA internal working draft versions of the standards, which have been essentially the same for the past two to three years. If substantive changes are made by EPA in its final standards, they may require us to change our rule by amendments.

Since the NRC technical rule serves as the detailed guidance to DOE for its decisions and activities resulting in an application for a particular site, we believe our technical rule should be issued as soon as practicable. To provide the complete regulatory framework however, EPA should also be encouraged to make every effort to promulgate its standards in final form as soon as practicable.

United States Department of the Interior
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

October 29, 1981

BY SPECIAL MESSENGER

Honorable James A. McClure
Chairman, Committee on Energy
and Natural Resources
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

Enclosed please find additional information in response to follow-up questions pursuant to the joint hearing before the Senate Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works on October 6, 1981, on S. 1662 and S. 637, nuclear waste policy.

Thank you for the opportunity to provide this material to the Committee.

Sincerely,

Theodore J. Garrish
Legislative Counsel

Additional Questions for the Record
From Senator James A. McClure

U.S. Geological Survey

1. In Section 403(a) the role of the U.S. Geological Survey in the establishment of guidelines for repository site recommendation is one of a "consultation". Is that appropriate or does the U.S.G.S. believe a more explicit role needs to be established in the legislation. Similarly, is the language of Section 408(a) adequate to assure a substantive input on the part of the U.S.G.S. into the National Site Survey Program?

U.S. GEOLOGICAL SURVEY

Answers to questions asked at October 6 hearing

It is appropriate for the U.S. Geological Survey to occupy a consultative role, as indicated in Section 403 (a) of proposed S. 1662, with regard to developing guidelines for repository site recommendations.

Regarding the language of Section 403 (a) (lines 15-16), we do not understand the meaning of "hydrogeophysics activity." Perhaps it was intended to say, "hydrologic and geologic conditions."

The language of Section 408 (a) is sufficient to allow the Geological Survey to participate substantively in the proposed National Site Survey program. However, we would like to reinforce our previous statement regarding the schedule for such an expanded program. If our pilot screening study in the Basin and Range Province is successful it could serve as a guide to the methodology of making an overall national screening program. However, it is doubtful that the proposed National Site Survey could be accomplished by January 1986 without an extraordinary application of funds and manpower. The availability of experienced scientists may be the greatest problem.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

NOV 9 1981

OFFICE OF
THE ADMINISTRATOR

Honorable James M. McClure
United States Senate
Washington, D.C. 20510

Dear Senator McClure:

I am happy to answer the additional questions you and Senator Simpson sent as a follow up to the joint hearings held on October 6, 1981, by the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works on S. 1662 and S. 637.

I have enclosed all five questions and answers. For the section-by-section analysis of the bills, with my testimony we submitted our analysis and detailed suggestion for the only section involving EPA.

Please let me know if I can be of further assistance on this subject.

Sincerely yours,

John W. Hernandez, Jr.
Deputy Administrator

Enclosure

Questions for the Record from Senator James A. McClure

Environmental Protection Agency

1. Could you briefly explain the assumptions you are operating under with regard to a geologic repository in drafting your standards?

Answer: In developing our standards, we evaluated the projected long-term performance of generic models of repositories in several different geologic media. We considered a wide variety of site characteristics and engineered barrier performance. To meet the level of protection we expect to propose, a repository typically would be located in geologic media (1) where there is relatively little groundwater and (2) where the geochemistry would provide a moderate amount of protection through limited solubility of most elements in the groundwater and through interaction of radionuclides with the minerals in the surrounding geological strata.

2. How likely, in your experience, is it that the proposed EPA standards will be significantly modified during the year you expect to have between proposal and promulgation?

Answer: Our assessment, based on preliminary technical evaluations by several Federal agencies, the National Academy of Science, and others, is that we do not expect to have significant modification in the standards between proposal and promulgation. However, we are planning for comprehensive public reviews of both our proposed rule and our supporting technical analyses and cannot rule out the possibility of significant modifications.

3. In your testimony you state that the "unknowns" concerning the appropriate geochemical and hydrological characteristics for a repository site necessitate a longer time for the National Site Survey program. Won't these uncertainties be reduced by simply setting guidelines for a site based on present engineering capabilities as done in Section 403(a) of S. 1662?

Answer: We did not envision the need for a longer time for completion of the National Site Survey program, and we believe that the survey should be completed at about the time the President would make a selection from the first three sites, as described in Section 405(a) of S. 1662. Rather, we expressed our concern that sites which are selected on the basis of preliminary surveys may not turn out to have appropriate geochemistry and hydrology when they are subjected to detailed site characterization. Therefore, we believe that considerable flexibility for alternative site selection should be provided for in the national program. To rely too heavily upon Engineered Barriers to compensate for poor geologic or hydrologic characteristics of a site may prove to be less cost-effective and more time consuming than to accelerate and expand the detailed review of alternative sites.

4. Will the EPA standards take into account present day population density at a proposed site? If we are to assume an unmonitored site that will hold wastes on the order of thousands of years, won't your standards which are designed to provide safe disposal over that time-frame provide safe disposal in the near term?

Answer: The current form of our numerical performance requirements will set limits independent of either present or future population density associated with a repository site. We have written our standards in this form in part because we do not think it is particularly meaningful to try to predict population density over the long period of time these wastes will remain dangerous.

We believe that you are correct in your conclusion that by providing adequate protection against the risk of releases from a repository thousands of years into the future, current populations residing around such a repository will be adequately protected.

Question for the Record from Senator Alan K. Simpson

1. In testimony provided to the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation on October 6, Dr. John Hernandez indicated that the guidelines would be nonobligatory. As federal guidelines are usually obligatory on executive federal agencies, please explain to what degree these guidelines would be binding upon DOE in selecting a repository site. To what degree will these guidelines duplicate the technical criteria for site selection already proposed by the NRC? Do any of the guidelines being considered by EPA preclude selection of a site in any of the host media now being vigorously pursued by DOE -- namely, basalt, volcanic tuff, and salt?

Answer: Our authority to develop Federal radiation protection guidance is based on the Federal Radiation Council responsibilities transferred to the Agency by Reorganization Plan No. 3 of 1970. These responsibilities call for us to provide recommendations to the President on radiation matters involving public health. When approved by the President, the recommendations become executive direction to all Federal agencies. Traditionally, the language of Federal guidance has remained in the form of recommendations and are therefore nonobligatory in nature.

The head of each Executive agency is responsible for implementation of approved radiation protection guidance. Executive Order 12088 directs the Administrator of the Environmental Protection Agency to monitor implementation of Federal Radiation Guidance. Conflicts on implementation may be resolved by the Director of the Office of Management and Budget. Exemptions may also be granted by the President.

The technical criteria proposed by the Nuclear Regulatory Commission (NRC) would implement, rather than duplicate, our environmental standards and radiation protection guidelines. We expect that only one of our guides will explicitly address site selection; this is a recommendation to avoid sites where there has been mining or where there is a reasonable expectation of exploration for scarce or easily accessible resources in the future. The NRC includes this type of consideration in the "potentially adverse conditions" listed in Section 60.123 of its proposed technical criteria. Our guideline would not, by itself, preclude any of the host media now being pursued by DOE. However, we are concerned that the frequent exploration and mining of salt domes may argue against locating a repository in this relatively uncommon type of structure. This same concern would generally not apply to bedded salt deposits, which are much more widespread.

Additional Question for the Record
From Senator Alan K. Simpson

Environmental Protection Agency

1. In testimony provided to the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation on October 6, Dr. John Hernandez indicated that EPA standards and guidelines for high-level waste disposal would be proposed by EPA in the near future. Dr. Hernandez indicated that the guidelines would be non-obligatory. As federal guidelines are usually obligatory on executive federal agencies, please explain to what degree these guidelines would be binding upon DOE in selecting a repository site. To what degree will these guidelines duplicate the technical criteria for site selection already proposed by the NRC? Do any of the guidelines being considered by EPA preclude selection of a site in any of the host media now being vigorously pursued by DOE--namely, basalt, volcanic tuff, and salt?

DAVID BERICK, ENVIRONMENTAL POLICY CENTER

Answers to Additional Questions for the Record
For Senator James A. McClure

1. The record shows that the Federal Government has engaged in a comprehensive site selection program for potential geologic repository sites in only one geologic media--salt. This is evident from DOE filings (DOE/NE-0007, Part II & Appendix B) in the NRC waste confidence proceeding, DOE congressional testimony over the past several years, and periodic DOE publications describing the National Waste Terminal Storage Program (DOE/NE-0008, "Nuclear Waste Management Program Summary Document," March 1980). Since 1957, when the National Academy of Sciences recommended salt as a suitable medium for geologic disposal, a major program including site screening of all salt formations in the U.S. has lead to the identification of four final major regions at which location studies are now underway to identify specific repository sites; Gulf Interior Region, Baradox Basin, Permian Basin, and Salina Basin.

Despite the fact that periodic literature searches and site specific examinations of other media have occured, such as the examination of geologic media underlying AEC/ERDA/DOE reservations, no corollary comprehensive site survey-selection effort has ever been carried out for any medium other than salt. ERDA did begin to expand its site selection program after publication of the Technical Alternatives Document (ERDA 76-43) but growing political opposition prevented any of this work from expanding beyond the literature stage except at a handful of ERDA reservations and the WIPP site in New Mexico which was an earlier identified site. Efforts to expand site selection to include other media was renewed in 1978 with the increased technical criticism of salt as a potential disposal medium most importantly with the publication of U.S.G.S. circular 779. Finally, in 1980, President Carter on advice of the Interagency Review Group on Nuclear Waste Management, ordered DOE to conduct a comprehensive site selection program into alternative media.

As a result of the failure to mount comprehensive site selection programs in media other than salt, the only non-salt sites presently available are those on DOE reservations, notably NTS and Hanford. While NTS and Hanford offer contrasting media, they do not necessarily represent the best nor even representative samples of those media--basalt, tuff, granite. While these three media may indeed be suitable, or the specific sites themselves may be suitable, no investigation has been conducted to compare these sites to others of the same media. In addition, as the U.S.G.S. testimony before this committee (Devine, Oct. 6, p. 4) notes, an entirely different non-media oriented site selection program may also be warranted. Such a program would analyze geologic systems, not just media, to determine overall suitability of various geologic formations as repositories. As argued articulately by Isaac Winograd (Science, 26 June 1981, "Radioactive Waste Disposal in Thick Unsaturated Zones.") places like the Nevada Test Site may be perfect sites when analyzed on the basis of performance as a geologic system. Nonetheless, there is not now, nor has there been a comprehensive site selection process to answer that question.

2. My argument did not specifically imply that all sites had to be submitted for licensing. While I believe that all suitable potential sites should be subject to site characterization in conformance to NRC requirenents, not all sites need be submitted for licensing although it could be argued that submission of more than one site would help assure success (if one had the resources at both the DOE and NRC to carry out such an effort).

I stand by the basic argument offered in my testimony that one cannot propound the existence of a methodical site characterization process either as provided in S. 1662 or NRC procedural regulations (10 CFR Part 60) as a technically and politically necessary step to assuring safe repository operation and summarily exclude one of the three prime sites from that process. The Part 60 procedures either exist; all sites are considered on par, or they don't. It is my opinion that it is a major mistake to undermine both the NRC procedures and the DOE site selection process by delegating one of the prime sites to a separate process, i.e. different technical and procedural footing. While I personally do not believe that the Commission threshold of "...three sites in two geologic media, at least one of which is not salt, to be the minimum number needed to satisfy NEPA." (46FR13972) to be adequate, the basic issue is whether or not DOE has a process which will result in the selection of technically and politically defensible sites. The better job DOE does, the more rigorous DOE's site selection process, the greater DOE's chance of success defending those sites. In my own view, final site selection should not go forward without the availability of a granite site and some effort to justify the suitablility of the existing sites on DOE reservations as representative of those respective media.

3. I am aware of the various proposals made over the years to make population density a consideration in proposing a site for a geologic repository, As with any nuclear facility at which such large amounts of radioactive materials are handled, population density should be a siting criteria be it an AFR, low-level burial ground, or geologic disposal facility. I do not believe however that the specific population density standard should be established by law, but rather should be the subject of rulemaking by the appropriate agencies.

4. I believe that the financing mechanism for geologic disposal utilizing a tax on nuclear generated electricity is a step in the right direction. I have not been able, to date, to get a fix on whether the one mil level is an appropriate level due to the great uncertainties surrounding transport and repository and discount rates; and while the rate seems adequate, I withhold judgement on the specific rate. It is clear that the one mil tax is not sufficient however to cover the proposed MRS or long-term storage option in Title V if such a program becomes the operative waste management strategy for commercial wastes. The Title V program, which envisions storage for an indefinite time with possible replacement of storage facilities, represents such a large potential future cost that collection of a 1 mil kilowatt per hour fee appears inadequate.

The large open-ended commitment to future costs inherent in the Title V program should not be included in the fee structure at this time, but should be examined at the time that the Secretary submits the Title V proposal to the Congress when the parameters of the program are more clearly bounded and Congressional approval of the proposal occurs.

DAVID BERICK, ENVIRONMENTAL POLICY CENTER

Answers to Additional Questions for the Record
For Senator Alan K. Simpson

1. The issue is not number of sites available for selection for the first repository, but whether or not those sites have been selected on some rational, methodical basis. My basic objection to the provisions in S. 1662 which establish the site selection process for the first repository is that DOE and the NRC are locked into a pool of sites, probably three, which are not the result of a methodical site selection process. The Nevada Test Site and the Hanford Reservation are sites which are being selected not because they are representative (to say nothing of superlative) of the specific media--basalt or tuff--but because they are conveniently located on DOE reservations. Selection of politically and technically defensible sites, is in my view, 90% of the solution to the development of an operational repository. By deliberately setting up a site selection process based on convenience and expediency rather than a demonstrably methodical approach, such as proposed in S. 1662 for the second repository, the authors of the bill are making a risky gamble that the three sites are in fact, adequate and can be defended.

I do not believe that this more methodical approach would delay operation of a repository a great deal since most licensing and political questions will revolve around the selection and adequacy of specific sites. A more comprehensive approach would delay site selection for the first repository some three years beyond the current schedule in S. 1662. S. 1662 picks the third site in January 1983 while U.S.G.S. testified that an expanded site survey program could be carried out within the same timeframe recommended in the bill for such a survey--January 1, 1986.

2. The question of how much spent fuel will be generated by the time the first repository is operational is only marginally relevent. DOE estimated in it's waste confidence filing that there would be approximately 99,700 MT of spent fuel generated by 2000. Clearly, that volume of material cannot be handled by a single repository

in any event. Furthermore, contrary to the usual DOE charts of spent fuel generation, it is important to realize that new nuclear plants are not being ordered and are in fact being canceled and deferred. Nuclear gneration capacity in the U.S. will peak, assuming the planned 30-35 year operational life, around the year 2005. While spent fuel will continue to be generated in large quantities, the rate of generation will level off or even decline beyond that year.

I believe that most if not all spent fuel can be stored at reactor sites. After all, the amount of spent fuel generated by any individual reactor is a finite amount easily handled by new construction and possibly handled at existing pools if pin storage is found acceptable. Water basin storage technology is well understood aside from these new rod compaction technologies. Additional strides are being made in dry storage technology, under the leadership of TVA, incorporating several European developments for both cask and vault storage. These give every promise of storage which is both safer and cheaper than centralized water basin storage.

Finally, the nuclear industry has engaged in a great deal of exaggeration over the effects of shortages of spent fuel storage predicting dire consequences of plant shutdowns because of a the loss of storage capacity or even full-core reserve. Plants, of course, will not shutdown with a loss of full-core reserve, and that reserve may represent an additional three to four years of time during which new storage capacity can be brought on line. While utilities have repeatedly raised the spectre of shutdowns because of a storage shortage, no such cries are echoed by utilites which are currently shutting down their PWR's for steam generator replacement (Surry, Turkey Pt. etc). A reactor shutdown and replacement power costs are not the end of the world it seems except when the federal government can be forced into providing spent fuel storage capacity.

3. The transport figures cited in the testimony apply to a national AFR program or comparable NRS as proposed in S.1662. The basic point raised by the NAS study, however, which is the large and heretofore unrecognized magnitude of the nuclear waste shipments to any away from reactor waste facilities be they ARF, NRS, or geologic repositories. The 2800 net capacity proposed in S. 1226 would entail some 7000 truck loads to AFR facilities or 700/yr 2 a day over a ten year period. Even at this rate, these shipments represent a tripling of current annual shipments of commercial spent fuel. Of course, a like number of shipments would be required to transfer the spent fuel out of the AFR to a repository.

4. There is clearly an advantage to obtaining logistical information prior to DOE application for a construction permit. The size and nature of surface storage facilities, including the proposed colocation of MRS facilities, as well as the capacity of encapsulation and emplacement facilities including the number of shafts will depend in large part on such information. To date many assumptions have been made about the ability of repository designs to emplace large amounts of waste per day on a continuous basis which may be unfounded and which will certainly be of significant concern at both the licensing stage and just as importantly during initial operation. Delay in obtaining logistical information until after licensing approval would not only come after final NRC approval of surface facility design and repository handling shafts and equipment, but after detailed Title I and Title II design work has been completed and bids let on both equipment and construciton services (both planned to proceed during license review and approval). (See DOE Waste Confidence Statement of Position, DOE/NE-007 @ III-55, "Design & Construction Time Facotrs")

5. The Test & Evaluation Facility distorts the site selection process for the first repository becuase it is sited at one of the three sites reserved for that process. Whereas the outward appearance of the site selection process is one of a "fair" race among the three candidate sites, the T&E site will have been singled out almost immediately

and more funds commited to the underground and waste handling facilities. Do not forget, waste emplacement is not needed for characterization and as result the T&G facility will be the only "hot" or radioactive site of the three candidate sites. This entails a much greater commitment by DOE and will necessarily result in a corresponding anxiety, if not belief, by the host state that the proposed T&E facility is in fact the repository--on a faster track than otherwise suggested. Similarly, the identification of one of the three sites as a T&E facility within a year of enactment clearly compromises the "fairness" or openness of the three-way selection process. The sites are no longer "equal" if one already has a repository under construction, certainly in the eyes of the host state and in the eyes of the concerned public which might otherwise expect DOE to pick the "best" site after thorough investigation. While the site itself may not be physically compromised, the credibility of the DOE/NRC selection and review processes will be compromised . . . and for questionable gain.

RESPONSE OF SHERWOOD H. SMITH TO ADDITIONAL QUESTIONS FOR THE RECORD FROM SENATOR JAMES A. McCLURE AND SENATOR ALAN K. SIMPSON ON S. 1662 AND S. 637 REGARDING NUCLEAR WASTE MANAGEMENT

Q1. You have said in your statement that more "streamlining" may be needed to ensure that the legislative milestones are achieved. Do you have any specific suggestions in this regard?

A1. Streamlining the decision-making process is imperative with regard to the application of the National Environmental Policy Act (NEPA) to federal decisions regarding a nuclear waste repository and to the application of the NRC hearing procedures to the repository construction application. Any legislation on nuclear waste management must make clear what constitutes a major federal action for NEPA purposes. It is our view that action short of final site selection by DOE for a permanent repository and the licensing of a permanent repository by the NRC should not be considered to be major federal action. It is at this point, after the completion of alternative site characterizations, that information will be fully available to allow for informed judgments on the relative merits of the alternative sites. If the legislation does not specify with precision what constitutes a major federal action under NEPA, intermediate decisions during the site characterization process may be subject to court challenge as defective unless having been preceded by the preparation of an environmental impact statement with the substantial procedural requirements in so doing that have been grafted onto NEPA by the federal courts. This is not to say that environmental considerations are not important and should not be carefully considered.

But NEPA should not be a procedural quagmire and instrument of needless delay. Both S. 1662 and S. 637 recognize the need to clarify the NEPA process regarding waste management decisions. As indicated in my testimony of October 6, 1981, more along these lines needs to be done.

An area which requires further refinement in the legislation is the consideration of alternative sites in the NRC review process. The legislation establishes a lengthy institutional mechanism for resolving State objections regarding site selection decisions. As provided by the legislation, resolution of a State's objection occurs before the NRC licensing review process. If a decision to select a particular site has been made by DOE, affirmed by the President, and ratified by Congress, the NRC should not be allowed to reconsider the issue of alternative sites. Rather, the NRC should examine only the question of whether the particular site chosen meets all of the NRC's public health and safety requirements. To allow otherwise would severely undermine and jeopardize the entire political process which led to the final site selection decision. An alternative approach to avoid this dilemma would provide that the State objection would be raised and considered after the NRC has issued a construction authorization at a particular site.

Another area which should be addressed by legislation is the elimination of duplication in agency preparation of required environmental impact statements (EIS). Under present procedures (10 C.F.R. 60), both DOE and NRC would prepare an EIS to accompany the final site selection decision. To avoid this unnecessary duplication, legislation should designate a lead agency to prepare the EIS, in coordination with other involved agencies.

Furthermore, we believe there should be close cooperation and coordination between DOE and the NRC during the site characterization process and preparation for an application for a license for a repository, and during the technical review of the application for the operating license. The review by one federal agency of a license application by another federal agency should not be an adversarial process. Rather, it should be one of close cooperation to ensure the public health and safety, while recognizing the need for the speedy implementation of a waste management program. Thus, a less adversarial licensing process should be mandated by law. It would further be desirable to apply the streamlined licensing procedures provided for in the legislation with regard to the expansion of on-site storage of spent fuel to the hearing process for the construction and operation of repositories.

Q2. Would the construction of a Test and Evaluation facility at a proposed site destroy the integrity of that site for further development into a repository?

A2. No. There is no technical reason why a Test and Evaluation facility should adversely impact the integrity of a site for potential further development into a full-scale repository.

In fact, one of the criteria for the development of a Test and Evaluation facility must be that it be constructed in a way to ensure the option for future use as a repository is preserved.

Q3. Why won't the private sector supply interim spent fuel storage?

A3. Let me address this question by discussing the problems that Carolina Power & Light Company has faced in ensuring adequate spent fuel storage for its H. B. Robinson plant in South Carolina. Until 1977, we had planned to ship our spent fuel to the Barnwell Reprocessing Plant to recover the usable energy resources. The high level radioactive wastes were to be shipped to a federal repository. Government policies changed abruptly, and, as is well known, Allied General Nuclear Services (AGNS) does not have a completely integrated facility for reprocessing. Only last week AGNS announced the write-off of this partially completed facility, (See attached letter of October 15, from Allied Corporation to William McCollam, President of EEI) and we are now left without a place to ship the spent fuel. We, and other electric utilities are expanding existing on-site spent fuel storage capacity to its maximum technically feasible limit.

It is highly uncertain whether alternative storage techniques, such as on-site dry storage methods, will in fact be licensed in the future, given that no such alternatives have been licensed to date. And as it is extremely unlikely that these alternative storage methods, even if ultimately licensed, could be licensed and built in time to meet our needs, off-site storage facilities are needed now. However, this recent history of interference with private investment by arbitrary changes in governmental policy has resulted in investors today being extremely unlikely to put the capital necessary to purchase an existing away-from reactor (AFR) spent fuel storage facility. Furthermore, state regulatory commissions may not permit utilities to invest in AFR's, given these same uncertainties. The participation of each utility in any group to purchase an AFR would be subject to challenge by anti-nuclear groups in each state in which the utilities provide electricity. The purchase of an existing facility in any one of the three host states--Illinois, New York, or South Carolina--would likely be challenged. At any of the three existing AFR's, such a utility group would be faced with purchasing non-spent fuel storage facilities as well. Again, this is unlikely to be allowed by state regulatory bodies. And, even if an existing AFR were purchased by a utility group, it is unclear whether the facility could be licensed in time to provide spent fuel capacity for the Robinson plant and other similarly situated reactors. Having failed the private sector in 1977, we believe the federal government is directly responsible for a viable solution to the spent fuel storage issue.

Q4. With regard to the mandatory fee, is there a precedent? Would Public Utility Commissions pass it through?

A4. We are not aware of any direct precedent whereby the federal government has by statute levied a specific fee (as opposed to a tax) on electricity generated from a particular power source. State utility commissions have levied a charge per kilowatt hour of electricity for various programs. We are confident that such a fee mandated by federal government would be considered a necessary cost to providing electric services and would be passed through to the customers enjoying the benefit of the nuclear generated electricity.

Q5. Could you explain your concern with regard to spent fuel which has already been accumulated and its relationship to the mandatory fee?

A5. As I mentioned in my testimony of October 6th, utilities have provided, to some extent, for a future payment for final disposal of high-level radioactive wastes or spent fuel already discharged from commercial reactors as part of the cost of the nuclear fuel. Equity dictates that the cost of storage and disposal of spent fuel, and cost of disposal of high-level radioactive wastes from processed spent fuel, should be borne by those who directly benefitted from the electricity generated from the nuclear fuel. The 1 mil per kilowatt-hour charge levied on nuclear generated electricity would accomplish that end prospectively. We believe that a charge equivalent to 1 mil per kilowatt-hour should be assessed per kilogram of heavy metal delivered to the DOE in the form of spent fuel or high-level radioactive waste for that fuel discharged prior to enactment of waste management legislation. This will enusre that to the maximum extent possible, the charge will be spread equitably among both past and future customers of the nuclear electricity.

Q6. Could you explain how a public corporation would make a better administrator of the Federal responsibility than DOE?

A6. We did not suggest that a public corporation would necessarily make a better administrator of the federal waste management responsibility than would DOE. We did say in our testimony of October 6th that we recognize that the Secretary of Energy is preparing to dismantle his department and that the Congress should begin considering what institutional form the successor to DOE for waste management should take. We do not believe this issue should be addressed in waste management legislation at the present time because of the need to address this already complex issue as quickly as possible. We note that the Department of Energy, as have its predecessor agencies, has been very much involved in the politics of energy and is subject to the politics of the budgetary process. A self-financing mechanism would resolve the question of adequate financing and the uncertainty of annual appropriations. We also believe that waste management is important enough to dedicate a mission-oriented authority--be it a federal authority or a public corporation with a federal charter--to concentrate on this task alone.

Moreover, it is important that there be continuity in the management of the waste management program. Past agency reorganizations and the pending dissolution of DOE have not contributed, and will not in the future contribute, to the stability and continuity necessary for the successful implementation of the waste management program in a timely and effective manner.

ALLIED

Allied Corporation
[illegible]
[illegible]
[illegible]

Brian D. Forrow
Senior Vice President
and General Counsel

October 15, 1981

Mr. William McCollam, Jr.
President
Edison Electric Institute
1111 19th Street, NW
Washington, DC 20036

Dear Mr. McCollam:

I am writing to inform you that Allied Corporation is today announcing that it has made a third quarter provision on its books to write off the Barnwell Nuclear Fuel Plant in South Carolina. As you know, we have openly stated in Congressional testimony and elsewhere that this action was being contemplated and Allied Chairman Edward L. Hennessy, Jr. stated at the time of the annual meeting of the Corporation's shareholders last April that such an action was likely. Today's decision was based on the assessment by Allied's management and Board of Directors that there is insufficient assurance at the present time that Allied will recover its substantial investment in the Barnwell facility to justify keeping that investment on its books as an asset. This decision, which we regret, follows years of frustration in our efforts to operate Barnwell on a private basis.

While the decision to provide for the write-off of Barnwell as a matter of prudent business judgment will change its status on Allied's books, today's action does not alter the commitment by Allied and its partner in the Barnwell facility, General Atomic Company, to carry forward with whatever research and development program Congress approves funds for FY'82. In fact, we are hopeful that R&D funds are finally appropriated and that the additional time provided by a FY'82 program will allow government programs related to reprocessing and waste management to crystallize and result in the utilization of what could be a national and international asset. At the present time, however, private commercial operation of Barnwell is no longer a practicable alternative for Allied in light of continuing regulatory barriers and policy uncertainties.

We appreciate very much EEI's support for Barnwell and we hope that today's action in no way lessens your efforts to advocate the need for a FY'82 research and development program at Barnwell. If you have any questions, please contact me directly or Jerry Halvorsen in the Allied Washington office.

Sincerely,

Brian D. Forrow

Brian D. Forrow

Atomic Industrial Forum, Inc.
7101 Wisconsin Avenue
Washington, D.C. 20014
Telephone: (301) 654-9260
TWX 7108249602 ATOMIC FOR DC

Edwin A. Wiggin
Executive Vice President

October 19, 1981

The Honorable Alan K. Simpson
U.S. Senator
United States Senate
Washington, D.C. 20510

The Honorable James A. McClure
U.S. Senator
United States Senate
Washington, D.C. 20510

Gentlemen:

Enclosed herewith are my answers to the questions enclosed with your letter of October 8. I regret that I was not able to submit this information more promptly, but for reasons that are not clear your letter did not arrive until October 15.

Sincerely,

Edwin J. Wiggin

EAW:plg
Enclosure

Question 1

What is your view of the funding mechanism for the commercial nuclear waste management program contained in S. 1662?

Answer

It should be noted at the outset that nuclear utilities fully expect to pay for any nuclear waste management services provided by the government. As to the funding mechanism, most utilities, I believe, would prefer a "user fee" in the form of a contractual obligation for services rendered. The apprehension some utilities have about a fee that is in reality a tax is that it could possibly set a precedent for taxing other services either now provided or that may be provided in the future by the government. On the other hand, the funding mechanism set forth in S. 1662 has the benefit of simplicity and would perhaps provoke fewer questions and less criticism from state utility commissions.

Although Sec. 603 is definitive in the amount to be paid, in designating who will be responsible for collecting the fee and to whom it shall be paid, it is less definitive as to what specific services will be provided. To the extent that this creates uncertainties or leaves loopholes for the diversion of funds for purposes other than those intended, the language of Sec. 603 should be amplified and clarified.

Also missing from Sec. 603 is any mechanism for adjusting the amount of the fee to be collected, should at some time in the future this become necessary. The language in this section should provide for a periodic review of the fee and a mechanism for adjusting it by the Congress.

Question 2

You support the test and evaluation facility if it is integrated into the repository program. Do you believe that the provisions in S. 1662 are adequate to do this? Do you believe that the limitations on the test and evaluation facility in S. 1662 are sufficient to assure that this facility does not adversely affect the repository program?

Answer

We support the test and evaluation facility only if it contributes to bringing into operation a repository for the permanent disposal of solidified high-level radioactive waste and spent fuel in less time than would be possible without it or if it can be used effectively to demonstrate to the public that we have the ability to handle and dispose of waste. It would appear to have the potential to serve either or both of these objectives.

On the other hand, the TEF will prove expensive and hence the Congress should satisfy itself that it will prove cost-effective. It is intended to be a generic type facility, independent of rock type. However, if it is installed in a type of rock formation or even at a site other than that subsequently selected for the first repository, there will be those who will claim that the information it produces will be of minimal value. Conversely, if it is located at a site designated two years later by the President as "qualified for application for license as a repository", the same critics will claim the TEF preempted that deliberation as well as the Commission's decision due three years later on approving or disapproving the repository application.

The provisions of S. 1662, contained in Sec. 407, appear to be adequate to assure integration of the TEF into the repository program. Similarly, the limitations imposed in this same section should assure that the TEF does not adversely affect the repository program.

S. 1662 would appear to allow not much more than a year for DOE to develop the following information in support of the TEF proposal: site selection, a site specific design, specifications and cost estimates adequate to solicit construction bids, consultations with NRC and EPA, and an environmental assessment. Although we support the concept of a tight schedule, it should not be so tight as to preclude the possibility of DOE's meeting it and thereby casting further doubts on DOE's capability to manage an overall waste repository program.

As pointed out in our initial submission, plans for the TEF should proceed only if the Congress is convinced that it will contribute to bringing into operation a waste repository in the minimum time possible. By way of a final comment, consideration should perhaps be given to adding a provision to Sec. 407 somewhat comparable to that contained in Sec. 404 (d)(2). If site characterization activities are terminated at a potential repository site for any reason and TEF work is under way at the same site, then that work too should be terminated. If the site is deemed unsuitable for a repository, any further information produced by a TEF located at the same site would be considered by some to be of little, if any, value.

Question 3

What are your views on the requirement in S. 1662 that the monitored, retrievable storage program be integrated with the interim spent fuel storage and disposal programs in the bill? Should a monitored, retrievable storage facility be co-located at the site of a reprocessing plant or a repository? Should this be mandated in the Act?

Answer

Integration of a monitored, retrievable storage facility into interim spent fuel storage and disposal programs would appear to be of only minimal value unless a need can be more specifically defined than is set forth in Sec. 501. Although there is no reason why a monitored, retrievable storage facility could not be successfully designed, built and operated, it would appear to have little value other than as a backup for an AFR program of inadequate capacity and/or for a seriously delayed repository facility. Its principal justification, therefore, would be as a contingency measure. There would appear to be no reason for not co-locating a monitored, retrievable storage facility at the site of a reprocessing plant or a repository, but we would see little value in mandating this in the Act.

Question 4

What are your views on the procedures to expedite the approval of additional on-site spent fuel storage capacity? Are these procedures necessary if utilities are to meet the policy under the bill that they have the primary responsibility for interim spent fuel storage?

Answer

Although we accept the concept that nuclear power plant operators have the primary responsiblity for providing interim storage, S. 1662 correctly recognizes that the Federal Government has the responsibility to provide such interim storage "for those civilian nuclear powerplants that cannot reasonably provide adequate storage capacity at the site of the powerplant when needed to assure the continued, orderly operation of the powerplant." Hence, the first step that needs to be taken, as specified in Sec. 302 (b), is for the Secretary to establish the criteria by which a determination can be made as to whether a given powerplant operator qualifies for the use of government-provided AFR services. Such criteria must be sufficiently definitive as to reduce to a minimum any room for debate on whether a given powerplant qualifies or does not qualify. The guidelines set forth in Sec. 311 (a) appear to be entirely reasonable and sufficiently comprehensive but are obviously spelled out in less detail that will be required in the criteria to be developed by DOE.

Those powerplants not qualifying for such government-provided AFR services must expand their on-site storage capacity. Their efforts to this end could be expedited if the bill mandated some of the provisions set forth in Sec. 403 and Sec. 405 in identifying and approving a site for a repository. For example, if the expansion of on-site storage were not subject to NEPA and if the Commission were obligated within some time certain to approve or disapprove an application for such expansion, it would greatly facilitate bringing such additional capacity into operation. If these provisions were mandated in the bill, we believe that it would expedite the approval of additional on-site storage capacity.

Edwin A. Wiggin
Secretary
AIF Committee on Fuel Cycle Policy

November 2, 1981

Mr. Keith R. Glaser
Minority Assistant Counsel
Environment and Public Works Committee
   United States Senate
221 Russell Senate Office Building
Washington, D.C. 20510

Dear Mr. Glaser:

Responding to your letter of October 22, I am enclosing answers to the questions transmitted with your letter.

At your request, copies are being sent to the Committee on Environment and Public Works and the Committee on Energy and Natural Resources.

Sincerely,

EAW:plg
Enclosure: 1

cc: Committee on Environment and Public Works
     Committee on Energy and Natural Resources

Question 1

On page 5 of your testimony, you advise the Congress to weigh carefully the cost-effectiveness of the Department of Energy's proposal to develop a test and evaluation (T&E) facility. Please provide your estimates of the cost of such a facility and the length of time such a facility must operate to achieve the Department's stated objectives.

(a) Could the Department carry out the activities proposed for the T&E facility in a more timely or cost-effective manner at the Waste Isolation Pilot Plant, the Hanford Reservation or the Nevada Test Site?

Answer

It is not possible at this time to make other than a rough estimate of what a T&E facility might cost. It will depend in part on the type of geologic formation in which it is sited and in part on the number and nature of in situ test objectives assigned to it. Among the objectives that DOE has identified for such a facility are: (1) demonstrate handling techniques, (2) develop data base for operation exposure, (3) develop data base for equipment reliability, (4) train personnel, and (5) develop emergency responses. DOE has estimated that a T&E facility would cost on the order of $300 million, but its program has not yet been fully scoped.

DOE assumes that a T&E facility would operate for 5-10 years. S. 1662 assumes that a T&E facility would go into operation 4 years prior to start up of a repository. Like the cost, the length of time it should operate will depend on the objectives assigned to the facility.

The merits of a T&E facility are potentially two-fold: (1) to bring into operation a repository for the permanent disposal of solidified high-level radioactive waste and spent fuel in less time than would be possible without it and/or (2) to effectively demonstrate to the public that we have the ability to handle and dispose of waste.

In answer to subquestion (a), it would be a mistake, in our opinion, to consider carrying out the activities proposed for the T&E facility at the Waste Isolation Pilot Plant. It has been determined after considerable political debate that WIPP should be reserved for wastes generated in the military program. That separation should be maintained with respect to the development of T&E type information. On the other hand, if information to be derived from a T&E facility can be developed in whole or in part at the Hanford Reservation or at the Nevada Test Site with facilities already in existence, preferential consideration should be given to doing this in the interest of saving time and/or money.

Since the T&E facility is supposed to be a generic type facility, it presumably could be sited at a variety of locations, independent of rock type. However, if it is installed in a type of rock formation or even at a site other than that subsequently selected for the first repository, there will be those who claim that the information it produces will be of minimal value. Presumably, T&E type information gathered at an existing facility at the Hanford Reservation or the Nevada Test Site would be subject to the same criticism.

Question 2

On page 6 of your testimony, you state that a monitored retrievable storage (MRS) facility "means different things to different people." For example, it could store solidified waste, if the operation of a geologic repository were delayed, or spent reactor fuel, if additional on-site or away-from-reactor storage were not available. Please state what, if any, specific functions the Atomic Industrial Forum (AIF) believes the MRS facility should perform. In addition, please provide detailed estimates of the size and cost of such a facility, as the AIF conceives it, and the accompanying nuclear waste transportation requirements.

Answer

A MRS facility could be used for the long-term storage of either spent fuel and/or solidified waste discharged by a fuel reprocessing plant. Placing spent fuel in a MRS facility until such time as reprocessing services become available would guarantee against loss of the unrecovered uranium and plutonium fuel values. Recovery of these fuel values cannot be expected to gain wide industry support, however, unless and until LWR recycle becomes economically attractive or recovered plutonium is needed to fuel the breeder.

With respect to the size and cost of a MRS facility, your attention is directed to a study entitled, "The Conceptual Design and Evaluation Study for a Spent Fuel Storage Installation" that was recently completed by Bechtel, Westinghouse and EG&G for EEI and DOE. It is our understanding that this report will be referenced in a more extensive report that DOE plans to complete shortly and transmit to the Senate Committee on Energy & Natural Resources. The Bechtel-Westinghouse-EG&G study was based on surface (open field) and tunnel dry well storage of encapsulated spent fuel. The conceptual designs evaluated assumed that spent fuel would be received, packaged in carbon steel canisters and emplaced at the rate of 900 metric tons of uranium per year. The facility would have a storage capacity of 10,000 metric tons of uranium. The report includes a number of cost estimates.

Although transportation to and from such a MRS facility would be expected to pose no particular problems, transportation requirements would obviously be minimized if such a facility were located adjacent to a fuel reprocessing facility or alternatively, adjacent to a permanent waste repository.

Question 3

Does the AIF consider reprocessing of commercial spent reactor fuel an essential element of a national nuclear waste management program? Please explain.

Answer

The short answer to this question, in the opinion of AIF's Committee on Fuel Cycle Policy, on whose behalf the October 6 testimony was presented, is "no". There appears to be no technical reason why a permanent waste repository could not accommodate either spent fuel or solidified waste discharged from a fuel reprocessing plant.

In its submission to NRC's Waste Confidence Rulemaking, AIF made the observation that "the disposal of spent fuel represents technologically an upper bound, i.e., the problems of heat dissipation and packaging integrity would appear to be more severe in disposing of spent fuel than in disposing of separated waste. Hence, any system accommodating adequate public health and environmental criteria for disposing of spent fuel would be more than adequate for disposing of separated waste. At the same time, the underlying technologies for the geologic disposal of both waste forms are essentially the same."

Question 4

Does the AIF support recently reported plans by the Department to reprocess spent fuel from commercial light water reactors to obtain plutonium for the U.S. nuclear weapons program?

Answer

The nuclear industry has long recognized that spent nuclear fuel is an important energy resource. The ability to extend the usefulness of the fuel to generate electricity has been an important element in developing the nuclear industry.

Over the past 30 years, the industry has developed an integrated long-term plan to get the most out of the fuel and, at the same time, resolve the waste problems. It is, in the industry's viewpoint, a very logical sequence of steps: the fuel being used in today's generation of reactors should be reprocessed to provide fuel for the light water reactor and for tomorrow's reactor -- the breeder; in turn, the reprocessing of the spent fuel from the LWR and breeder will simplify long-term waste management, i.e. reduce its volume.

For three decades, the U.S. has had an effective separation of the civil and military nuclear programs, and we believe that both have benefited from this dual-track development.

Question 5

Please provide the AIF's position on each element of the Administration's nuclear policy statement announced October 8.

Answer

On October 8, shortly after the President released his policy statement, AIF made the following comment:

> "The President's statement strongly supporting nuclear power is welcome, recognizing as it does the compelling need for us to utilize this energy source. The President has found that the atom can provide abundant, safe, and ecologically clean energy for America's growing population and expanding industry. We wholeheartedly agree.
>
> "The nuclear industry now looks forward to the detailed implementation of the positive policies outlined in the Presidential statement. These include the disposal of radioactive nuclear waste, increased efficiency in nuclear power plant licensing, and completion of the Clinch River Breeder Reactor demonstration project.
>
> "We do urge the President to exercise leadership in arranging for the interim storage of spent nuclear fuel in government-operated away-from-reactor storage. We similarly urge that he support government operation of a demonstration plant for chemically reprocessing spent fuel. The actual costs of such services would be borne by the utilities using them.
>
> "The industry welcomes the President's invitation to work with members of his Administration on steps needed to overcome obstacles standing in the way of increased use of nuclear energy."

On October 1, AIF Chairman Francis M. Staszesky wrote to the President on the same matter. A copy of his letter is attached hereto.

Question 6

Given the recent decision by the Allied Corporation to write off its reprocessing plant at Barnwell, S.C., even as the Administration lifts the indefinite deferral of commercial reprocessing of spent reactor fuel, under what circumstances, if any, would reprocessing of spent reactor fuel become a commercially viable enterprise? Please explain in detail. When, if at all, do you believe such circumstances would occur?

(a) Should the Federal Government guarantee the purchase of plutonium from a commercial reprocessing plant?

Answer

Reprocessing can be expected to become a viable enterprise when plutonium is needed to fuel the fast breeder and/or when plutonium recycle in light water reactors becomes economically attractive. Given today's availability and price of uranium, reprocessing for LWR recycle alone cannot be justified on a near-term economic basis. Accordingly, near-term initiatives to renew reprocessing must be driven by the needs of the breeder program and U.S. foreign policy (non-proliferation) objectives.

Further, reprocessing cannot be expected to become commercially viable until considerably more certainty and stability has been built into the licensing of reprocessing plants and such ancillary facilities as will be used for plutonium processing and waste solidification.

Since it was government policy that forestalled private reprocessing over the past 4-6 years, it is the opinion of the AIF Committee on Fuel Cycle Policy that the government must carry out reprocessing until industrial confidence has been restored. Operation of an LWR fuel reprocessing facility by the government would: (1) provide valuable experience in the reprocessing of commercial spent fuel; (2) reduce the burden of spent fuel storage; (3) provide plutonium for the breeder program; (4) assist in establishing realistic licensing criteria; (5) define and demonstrate production of an acceptable waste form for permanent disposal; and (6) provide a facility to demonstrate meaningful international safeguards.

Whether the Federal government should guarantee the purchase of plutonium from a commercial reprocessing plant will depend on circumstances that exist after operation of a government demonstration plant has met the above-listed objectives. At that time, guaranteed purchase of plutonium by the government, assuming a need for plutonium has been established by the breeder program, should be considered as a possible incentive in encouraging private entry.

Edwin A. Wiggin
Secretary
AIF Committee on Fuel Cycle Policy

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Francis M. Staszesky
Chairman

October 21, 1981

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

The nuclear industry welcomed your policy statement of October 8, 1981 setting forth a number of initiatives to be taken by your Administration "to enable nuclear power to make its essential contribution to our future energy needs." We share your belief that nuclear power is one of the best potential sources of new electric energy supplies. We also agree that resolution of the problems identified in your statement are important to permit a revitalization of nuclear power. It is to that end that we are writing to you at this time.

We note that you have directed the Secretary of Energy and the Director of Science and Technology Policy to identify "the obstacles which stand in the way of increased use of nuclear energy and the steps needed to overcome them." We believe the Atomic Industrial Forum can make constructive contributions to their consideration of key issues that will presumably come under their review.

The Forum has recently completed the development of a one-stage licensing concept, the adoption of which we believe could appreciably reduce the 10-14 years now required to license and build a nuclear plant. We concur that "this process must be streamlined with the objective of shortening the time involved to 6-8 years" as called for in your October 8 statement. Copies of our concept have been transmitted to DOE and NRC as well as to selected staff members of several Congressional committees known to have an interest in the nuclear licensing process. We will also soon offer recommendations for regulatory reform dealing with the hearing process, that NRC could institute within existing legislative authority.

Another matter that has been the subject of intensive Forum study is the back end of the nuclear fuel cycle. At the Secretary of Energy's request, we provided our recommendations last May on away-from-reactor storage and reprocessing of spent fuel. We strongly urged that the government make available such storage and assured the Secretary that the utilities were willing to pay the full cost of services provided.

Another issue we assume DOE and OSTP will include among matters criticaly in need of early attention is the problem of capital formation. As you have pointed out, passage of your economic recovery program should improve the climate for capital formation. However, because of the capital-intensive nature of nuclear plants, we believe that additional incentives will be needed if the nuclear option is to merit the consideration that its lower operating costs warrant. General regulatory acceptance of CWIP is one such example. In any further instructions to DOE and OSTP, we hope you will emphasize the importance of their treating in detail each of the individual components of your tax bill that relate to capital formation for nuclear construction.

In the weeks and months ahead, we shall be in touch with both the Secretary of Energy and the Director of Science and Technology Policy to offer our counsel on specific matters under their review. With the assistance we may be able to offer, we hope it will be possible for them to make their recommendations to you well in advance of the September 30, 1982 date specified in your statement. Now that you have provided the leadership the program has so badly needed, time is of the essence in bringing the benefits of your initiatives to the American public.

Sincerely,

F. M. Staszesky
Chairman

bcc: Messrs. S. H. Smith, Jr.
F. W. Lewis
W. McCollam, Jr.
J. T. Conway
E. A. Wiggin ✓

Union of
CONCERNED
SCIENTISTS

November 9, 1981

Honorable Alan K. Simpson
Honorable James A. McClure
United States Senate
Washington, DC 20510

Dear Senators Simpson and McClure:

Enclosed for the record are answers to the additional questions submitted by Senator Simpson regarding nuclear waste policy.

The Union of Concerned Scientists (UCS) appreciates the opportunity to testify on this important issue, and would be pleased to furnish any further assistance that your Committee may find useful.

Sincerely,

Eric Van Loon

Eric E. Van Loon
Executive Director

Enclosures

1384 Massachusetts Avenue • Cambridge, Massachusetts 02238 • Telephone (617) 547-5552

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Additional Questions for the Record
From Senator Alan K. Simpson

Mr. Van Loon, Union of Concerned Scientists

1. You argue that Section 101.(i) of S. 1662 is intended to terminate NRC's Waste Confidence Proceeding. I believe this same provision was passed by the Senate last year, and at the time it was pointed out that this provision is not intended to affect the NRC proceeding. Would this commentary satisfy your concerns here?

2. Your testimony indicates that the test and evaluation facility may not be needed at all. How might we obtain needed technical information on waste handling, packaging and emplacement in order to have that information available when we build, and finalize the design of, the first repository?

3. I would question your comments on the NEPA limitations for the monitored, retrievable storage facility. You assert that these limitations would eliminate questions of site suitability and alternate sites. I do not read the provision as doing this. How do you believe that site suitability and alternative site issues will be foreclosed by the provision in the bill?

4. I find your testimony concerning the hybrid hearing procedures of section 313 somewhat intriguing, particularly in light of the fact that similar provisions are contained in past and present versions of proposed regulatory reform legislation in the Congress. Why is it that the procedures proposed for all other federal agencies in

these bills are inappropriate for the NRC, and, in particular, what is it about NRC's health and safety responsibility that distinguishes those responsibilities from the health and safety responsibilities of other agencies?

5. You note in your testimony that potential intervenors would be placed at a severe disadvantage at the outset of such hybrid hearings for 2 principal reasons: First, intervenors would be required to submit their arguments prior to discovery, and Second, the hearing board must identify those issues requiring resolution in an adjudicatory hearing without the benefit of any testimony. But doesn't the bill in fact provide that, prior to the commencement of the hearing conducted by the hearing board to identify adjudicatory issues, discovery will be provided at the Commission's discretion, and, again prior to the commencement of this hearing, each party, including the Commission, must submit a written statement of all facts and arguments to be relied upon?

6. Is it unreasonable to require that, after a suitable period for discovery, parties state at the outset of a hearing the arguments they intend to make and the facts upon which they intend to rely to support those arguments?

7. The approach of section 313 rests upon the assumption that adjudicatory procedures are appropriate for the resolution of certain kinds of issues, such as those detailed in the bill, but perhaps not the best approach for resolving policy issues. Where the issue involves matters of policy, as opposed to specific factual disputes, of what benefit are adjudicatory procedures, and, to select only one example, in what way does the cross examination of a witness assist the agency in resolving a policy issue?

Answers to Additional Questions for the Record
from Senator Alan K. Simpson

1. Yes. A clear statement in the Committees' reports to that effect would let the NRC and the public know that the Waste Confidence proceeding is to be completed as planned.

2. A separate test and evaluation facility at a repository site is not needed to develop this sort of information. Generic research on materials handling, waste packaging and emplacement could be performed at any suitable existing facility, such as the Climax site. Any site-specific research could be performed as part of the site characterization activities at the potential repository site, under the supervision of the NRC and subject to any constraints on site characterization activities contained in this legislation, without compromising the integrity of either the site or the repository licensing process. In that way the test and evaluation facility would not become, or be viewed as, a backdoor way of establishing a permanent repository without going through the required licensing and state concurrence procedures.

3. Under Title V of S. 1662, the combination of statutory deadlines and NEPA exemptions would operate in the following manner. Within one year after enactment, DOE is required by section 501 to propose at least one "site-specific" design for a retrievable, monitored storage facility (MRS). Thus both the site and the design must be selected within the one-year period. S 1662 does not authorize any public participation in this site and design process, and preparation of the site/design proposal is exempted from NEPA under section 504. Under section 504 (b), NEPA applies only after Congress has authorized construction of the initial facility. While it is theoretically possible that questions of site suitability and alternative sites could be seriously considered at this stage, the fact of the prior Congressional commitment of resources to a particular site and design will, as a practical matter, preclude any genuine evaluation of alternatives. Since DOE will have proposed one site-specific design, it is not clear to us how the site can be decoupled from the design for purposes of the NEPA review. It is also not clear what person or agency will generate any information on alternative site-specific designs. Instead, we believe that the NEPA process will almost certainly be reduced to a means to justify the decision already reached, particularly in view of the pressure to meet the deadlines established in S 1662. If alternative sites and designs are to be meaningfully considered, that review should take place before the construction proposal is sent to Congress. Once Congress has decided to proceed, the critical decisions will have already been made and the likelihood of substantially altering them will be relatively low.

4. We are not familiar with other regulatory reform legislation, and thus prefer not to comment on it. However, if Congress desires to experiment with hybrid procedures, we hope that other areas of regulation will be selected as the subjects of these experiments. We are not sure that "streamlining" of licensing procedures is an appropriate goal for any agency that protects the public health and safety, when the purpose of that "streamlining" is to ease the licensing of a facility that poses substantial safety risks. But we

firmly believe that the NRC in particular must not be subject to the pressures for quick action that necessarily result in a less than thorough airing of legitimate technical issues. Congress should be especially leery of any reduction in the public's opportunity to review and challenge the data upon which the agency makes its decisions. Few if any other regulated technologies involve as grave a threat to the public health and safety as the consequences of a catastrophic nuclear accident. This unique risk, along with NRC's history of promotion of and support for nuclear power and the Atomic Energy Act's near-absolute preemption of state and local regulatory authority, necessitate the highest standards of procedural openness. We find it especially difficult to justify any comparison between nuclear safety regulation, on the one hand, and the sort of economic regulation to which most regulatory reform legislation is addressed, unless Congress' pre-eminent concern is in fact the economics of the nuclear industry.

5. It is not clear from the language of section 313 that all parties will have an unqualified right to engage in discovery as they would in any other NRC adjudicatory proceeding. As your question acknowledges, under section 313 discovery would be provided at the Commission's discretion. Any limitation on discovery inherently disadvantages parties other than the applicant and the Staff. The right to full pre-hearing discovery is crucial to an intervenor's ability to participate effectively in any hearing, whether adjudicatory or hybrid, and section 313 should be redrafted to guarantee that right.

In addition, as your question points out, the last sentence of the first paragraph of section 313 requires the parties to submit "all the facts and arguments upon which that party proposes to rely" at the "time the proceeding is initiated". That submission would thus be due before any discovery is allowed. The requirement that each party submit a written statement of all facts and arguments it intends to rely upon is not an effective substitute for full prehearing discovery. Each party needs the results of discovery before it drafts its own testimony. In addition, intervenors in particular are as interested in the facts that the applicants and the Staff do not rely on as those they choose to bring forward. Thus, this provision is insufficient to allow intervenors access to the information necessary to establish exactly which facts will be in dispute, which is the ostensible purpose of the special hybrid procedure proposed in section 313.

6. No, such a requirement is not unreasonable after a suitable period for discovery. NRC's current adjudicatory procedures include such a requirement. As explained in the answer to question 5, section 313 appears to be more restrictive in that it does not clearly provide for a suitable period for discovery before this requirement is imposed. Section 313 also appears to ignore the reality that, in any fact-finding proceeding, many facts will be learned only through cross-examination.

7. NRC proceedings generally are not susceptible to sharp distinctions between the "facts" on the one hand and the "law" or "policy" on the other, because the law and policy depend to a significant degree on the facts of the particular case. Section 313 applies to specific applications for spent fuel storage expansion. These do not normally involve "policy" questions. Any "policy" questions that are independent of the underlying facts should be dealt with through rulemaking. An adjudicatory proceeding, with sworn testimony and full cross-examination, is the most appropriate way to develop and probe into the underlying facts of each case. In particular,

cross-examination can be very effective in bringing to the record factual issues that might not otherwise be apparent, and which may often raise new and distinct "policy" questions.

CP&L
Carolina Power & Light Company
P. O. Box 1551 • Raleigh, N. C. 27602
(919) 836-6382

October 29, 1981

SHERWOOD H. SMITH, JR
Chairman/President

The Honorable Gary Hart
Ranking Minority Member
Subcommittee on Nuclear Regulation
United States Senate
Washington, DC 20510

Dear Senator Hart:

Enclosed is my response to the questions transmitted in your October 19, 1981, letter regarding my October 6 testimony on nuclear waste management policy.

If we can be of further assistance, please feel free to contact me or the staffs of the Edison Electric Institute, the Utility Nuclear Waste Management Group, or the American Nuclear Energy Council for specific information.

Sincerely,

Sherwood H. Smith, Jr.

SHSjr:cbw

Enclosure

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Response of Sherwood H. Smith to Additional Questions for the Record from Senator Gary Hart on S. 1662 and S. 637 Regarding Nuclear Waste Management

Q.1. In your testimony you stated that a nuclear unit operated by your company, H. B. Robinson Unit 2, faces a possibility of shutting down sometime during the 1980's for lack of spent fuel storage capacity and that it will run out of full-core discharge capability in 1986.

a. Have you considered alternative means of providing storage at the Robinson site, such as expansion of the current spent fuel pool, construction of an additional pool, or utilization of on-site dry storage? If you have rejected any of these options, please explain in detail the reasons for the decision.

b. Do you consider full-core discharge capability necessary for safety reasons? Do you consider full-core discharge capability necessary for economic reasons? If so, under what circumstances?

A.1.a At the present time CP&L's H. B. Robinson plant will lose full-core discharge capability after the next refueling outage scheduled for March 1982 and faces the possibility of shutting down in 1985 for lack of spent fuel storage capacity. Steps which CP&L has taken to provide storage for Robinson fuel are shown in Attachment 1. As indicated by the table, CP&L first expanded the capacity of the Robinson pool in 1975. In 1977 and 1978, the spent fuel storage pools at CP&L's Brunswick nuclear plant in North Carolina were modified to store Robinson fuel. We have recently taken further steps to add as much storage capability as possible at Robinson in 1982 to maintain full-core discharge capability at the unit until 1986 and reactor operation until 1989. Our application to modify the Robinson license to allow the storage capacity increase was submitted to the NRC last December (Docket 50-261). My testimony assumed that our application would be approved and that the planned increase in capacity would be realized. Further increase in storage capacity at Robinson is not possible due to building foundation limitations. All of these actions are temporary in nature and simply buy time. Having transferred some of the Robinson spent fuel to Brunswick means that the spent fuel pools at Brunswick will be full that much sooner.

CP&L has also considered other methods of on-site storage at Robinson. We have looked at the techniques being developed for the dry storage of spent fuel. These include cast-iron casks, concrete silos, and near surface caissons. Demonstration programs for these techniques are in progress both in the U.S. and abroad. Wholly apart from technical feasibility, however, there are significant institutional issues which are likely to be raised--particularly in the near term--for any dry storage technique which has the appearance of permanence. State and local governments may perceive such storage to be too permanent, perhaps even a substitute for geologic disposal in a federal facility. Until a permanent repository has been sited and licensed, many jurisdictions may strongly resist any kind of on-site dry spent fuel storage. Furthermore, NRC licensing of these techniques for dry storage, on site, is another uncertainty. None of the dry storage techniques are presently licensed by the NRC. These considerations make it unwise for utilities to rely on dry storage for spent fuel storage needs at reactor sites before the 1990's. As I noted in my July 9, 1981 testimony before the House Interior Committee's Subcommittee on Energy and the Environment, because of its size, federal character, and immunity from the normal type of state utility regulatory authority, the TVA approach of on-site dry storage is certainly not a program which private electric utilities are assured of being able to imitate.

Construction of an additional wet storage pool at Robinson could not be accomplished in a reasonable time period. We would be faced with some of the same institutional constraints as with on-site dry storage if we were to propose an additional wet storage pool at Robinson. We estimate that it would take at least six to eight years to design, license and construct a wet storage facility at Robinson.

A.1.b Full-core discharge capability is not necessary for safety reasons, although the plant would be required to be shut down when it is necessary to remove more fuel from the core then pool discharge space is available. There are six basic categories of developments that may lead to the decision to remove the entire core of reactor fuel. These categories are:

1. Maintenance and modifications
2. Inservice inspection of the reactor vessel (ISI)
3. Fuel shuffling

4. Fuel Problems
5. Inspections other than ISI
6. Extended Shutdowns

Documented examples of more than eighty cases of full core removals prior to early 1979(1) include replacement of feedwater spargers; vendor modification of reactor internals; complete core replacement with a new type of fuel; convenience during maintenance, modification or refueling; inservice inspection of the reactor vessel; fuel inspection or vessel internals inspection; fuel removal during an extended plant shutdown for major work such as steam generator replacement, seismic modification or accident recovery. At the Robinson unit the entire core must be discharged early next year for a required periodic inspection of the reactor vessel.

In the future, these as well as other activities such as pressure vessel rework or major repair, nozzle repairs, and major repair or replacement of vessel internals including replacement and installation of instrument systems, control elements, and possible fuel problems could necessitate full core removal.

In each case the choice to remove the entire core of fuel would be made either because there was no reasonable alternative or it offered the most practical and convenient means of achieving the primary objective. If it were necessary to remove the Robinson core at a time when we did not have full-core discharge capability, it would cost our ratepayers over $200,000 per day while the reactor was out of service. There is no assurance at this time that alternative away-from-reactor storage could be arranged. Furthermore, the actual downtime would depend on such factors as the time to amend licenses and indemnity agreements, the shipping distance, the number and size of shipping casks used, number of fuel assemblies to be shipped, and, of course the availability of storage capacity elsewhere. We would undoubtedly be facing a shutdown measured in months. If such a shutdown were to occur at a time when excess fossil fuel generation on our system was not available, then the cost to our ratepayers could be significantly greater since we would have to use oil-fueled peaking turbines and/or purchase off-system power (if available). Prudent planning dictates maintaining full-core discharge capability; and, of course, when refueling is required, the unit must be shut down if we do not have adequate discharge capability.

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(1) "Full Core Removal Study," prepared for EEI by Pickard, Lowe, & Garrick and Associates, April 1979.

Q. 2. Given the recent decision by Allied Corporation to write off its reprocessing plant at Barnwell, South Carolina, even as the Administration lifts the indefinite deferral of commercial reprocessing of spent reactor fuel, under what circumstances, if any, would reprocessing of spent reactor fuel become a commercially viable enterprise? Please explain in detail. When, if at all, do you believe such circumstances would occur?

A. 2. Allied cited the following reasons for the decision to make provisions to write off their portion of the Barnwell Nuclear Fuel

Plant (Allied statement, dated October 15, 1981, given as Attachment 2):

- the prospect exists that future Presidents may return to the Carter ban on reprocessing;
- the licensing of any nuclear facility by the Nuclear Regulatory Commission (NRC) cannot be assured and the obstacles in the way of near term licensing of reprocessing facilities are formidable;
- there are no regulatory or technical procedures for the management of high level nuclear waste; and,
- issues with regard to the solidification, storage and ultimate use of plutonium from a civilian nuclear facility have not been resolved and the application of the National Environmental Policy Act remains uncertain.

We do not view Allied Corporation's decision to no longer carry the Barnwell Nuclear Fuel Plant as an asset on their books as a determination that reprocessing will never be economically viable but rather an expression of their present frustration over the regulatory barriers and Federal policy uncertainties.

We are hopeful that this Congress and this Administration will reverse the present adverse political climate before 1983 when

Allied reportedly will write off the Barnwell Plant for tax purposes which would mean scrapping the plant entirely and rendering it completely useless.

In addition to the political issues, the question of when reprocessing of commercial spent fuel will take place depends in large part on the end use of the recovered nuclear fuel, disposition of all wastes, and the associated economics as judged against the alternatives to reprocessing and their associated costs. We feel that reprocessing should eventually take place in order to obtain the valuable energy resource that spent fuel represents. Reprocessing is an integral aspect of the breeder reactor program, for example, with the great potential of that technology for meeting future energy needs. However, given the history of governmental barriers to commercial reprocessing, it is difficult to estimate when commercial reprocessing and recycle may occur in light water reactors, especially because the timing may be largely dependent upon Congressional action.

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ATTACHMENT I

CAROLINA POWER & LIGHT COMPANY

ROBINSON NUCLEAR UNIT - HARTSVILLE, SOUTH CAROLINA SPENT FUEL STORAGE

1970	CP&L signed contract with AGNS for reprocessing of spent nuclear fuel.
1971	Robinson PWR unit began commercial operation.
1975	Spent fuel pool full; added as many storage locations as possible in vacant area of pool to permit unit refueling.
1976/77	President Ford states that reprocessing not inevitable part of fuel cycle. President Carter indefinitely defers reprocessing/plutonium recycle.
1977/78	Unit refueled; spent fuel pool full again.
	Applied for NRC permission to replace storage racks at Brunswick BWR plant, Southport, North Carolina, and ship PWR fuel from Robinson to Brunswick.
	Permission to store Robinson fuel at Brunswick delayed (quorum of NRC Commissioners not available). Delay caused Robinson Unit to operate at 40 percent power for ten weeks to avoid running out of fuel during winter peak with United Mine Workers strike anticipated in early 1978.
	Permission received and shipment of Robinson spent fuel to Brunswick begun in October 1977.
1979/80	Continued shipments of Robinson fuel to Brunswick plant.
	President Carter announced national waste management plan, including authorization for DOE to provide Away From Reactor (AFR) storage of utility spent nuclear fuel.
1982	CP&L plans to install maximum storage capacity (high-density racks) at Robinson plant.
1986	Lose full-core discharge capability at Robinson plant; need 20 tons of off-site storage.
1987/88	Need additional 20 tons off-site storage each year.
1989	Robinson unit must shut down if additional storage is not available.

ATTACHMENT 2

ALLIED
Corporation

Corporate Headquarters

FEDERAL POLICY AND ALLIED CORPORATION'S INVESTMENT IN THE BARNWELL NUCLEAR FUEL PLANT

Following President Carter's April, 1977 indefinite deferral of commercial reprocessing, the Nuclear Regulatory Commission terminated the licensing proceedings for Barnwell. With the major shift of Government policy, the Barnwell project as originally envisioned became totally impracticable. While the option of shutting the facility down was considered at that time, it was not pursued primarily for two reasons. First, a number of Congressional leaders firmly believed that President Carter had made a mistake and Congress provided R&D funds in the DOE budget to preserve the Barnwell option. Second, even though the President had indefinitely deferred commercial reprocessing, the Administration committed to a program of Federal away-from-reactor (AFR) storage to alleviate the spent fuel congestion that would build up at reactor sites as a result of the reprocessing deferral and senior DOE officials proposed to acquire Barnwell for use as a regional AFR storage site.

From 1978 through 1980, discussions were held with senior DOE and White House officials regarding the sale of Barnwell to the Federal Government for AFR storage and other possible uses. Legislation was submitted to Congress in 1979 by the Administration to create a $300 million revolving fund for the purpose of acquiring two or more AFR storage sites.

An Allied letter dated November 10, 1980, sought the support of DOE Secretary Duncan for the transfer of Barnwell to the Federal Government during 1981, and advised that continued inaction on Barnwell by the Executive Branch and Congress could result in a decision by the owners to shut the facility down.

On November 18, 1980, the owners of Barnwell received a letter from the DOE which called for discussions on the possible transfer of Barnwell to the Federal Government for use as an AFR storage site. This letter was transmitted in response to a Congressional directive in the FY'81 DOE Appropriation bill to determine the availability of existing spent fuel storage sites for Government acquisition. During December, discussions were held with DOE officials regarding the transfer of Barnwell to the Federal Government for use as an AFR storage site.

In February, 1981, DOE Secretary Edwards withdrew the Federal commitment to provide AFR storage. However, the Department of Energy (DOE) transition team had recommended to Secretary Edwards in January that Barnwell be acquired starting in FY'82 to provide needed plutonium for the breeder reactor demonstration program.

Secretary Edwards pursued this recommended course of action and advised Congress during hearings in February of plans for the DOE to acquire Barnwell. This plan was abandoned when the Secretary's request for funds to begin acquisition of Barnwell in FY'82 was not approved. Administration officials indicated, however, that government acquisition was not ruled out, as the Secretary was advised by the President that the decision might be re-examined later if private operation of Barnwell was not possible. This was followed on March 12 by the House Science and Technology Committee authorization of $12 million to maintain Barnwell through FY'82 as a necessary and vital link for the breeder reactor program. Therefore, the option for government acquisition of Barnwell still existed and Congress appeared willing to support Barnwell in an R&D mode for another year.

On March 20, President Reagan transmitted a memorandum to Secretary Edwards reaffirming his decision on Barnwell. In this memo, the President stated that: "I do not believe it would be appropriate for the Federal Government to acquire the Barnwell plant or to finance construction or operation of any of its facilities." The President directed the Secretary to "consult with industry" and "develop recommendations for my further review on how to create a more favorable climate for private reprocessing efforts."

On April 23, in furtherance of this directive, Secretary Edwards invited 17 industrial and utility representatives, including representatives of the owners of Barnwell (Allied Corporation and General Atomic Company) and representatives of utilities having significant investments in nuclear energy, such as Commonwealth Edison, Carolina Power & Light and Duke Power, to meet with DOE officials to review the prospects for private reprocessing. The industry consensus at this meeting was that President Carter's April, 1977 indefinite deferral of commercial reprocessing had terminated any prospect for private investment in reprocessing and that, in the existing political and regulatory climate, private reprocessing remained commercially impracticable.

This meeting was followed by five significant developments which reaffirmed the conclusions from the April 23 meeting.

First, a white paper on the backend of the nuclear fuel cycle was prepared by the Atomic Industrial Forum and the American Nuclear Energy Council. This paper, which was transmitted to Secretary Edwards and released publicly in May, reaffirmed that AFR storage and reprocessing must be undertaken by the Federal Government.

Second, during May, the Senate Energy and Natural Resources Committee marked up and reported out the FY'82 DOE authorization bill. In this bill, the Committee directed the Secretary of Energy to "...develop a plan to acquire and operate nuclear fuel reprocessing plants..."

Third, on July 14, the Chairman of Carolina Power and Light (CP&L) wrote to Secretary Edwards. This letter outlined why the electric utilities were not financially able to invest in AFR storage and reprocessing facilities. Because CP&L's Chairman is also Chairman of the American Nuclear Energy Council and Chairman of the Policy Committee on Governmental Affairs of the Edison Electric Institute, the letter was viewed by Allied as representing a clear utility consensus.

Fourth, on July 21, Rep. Lujan (R-NM) introduced comprehensive legislation to create a government-industry Nuclear Fuel Management Corporation, which would acquire Barnwell as the first step in establishing a domestic reprocessing industry. This legislation was based on the fact that a strong Federal Government initiative, including funding, was necessary to get reprocessing moving.

Fifth, during late July, the DOE released its "National Energy Plan." In the first public deviation from the President's March 20 memorandum, the Plan stated that the Administration "...contemplates the reprocessing of spent fuel by either the private or the public sector..."

These events provided encouragement for those who were interested in government acquisition of Barnwell. However, events during the last week of July and August discouraged DOE officials from proceeding with the government acquisition initiative. These events were a combination of the need for deeper budget cuts in FY'83 and FY'84 due to larger than estimated deficits, expressed Congressional opposition to acquisition and continued R&D funding for Barnwell and some preliminary expressions of possible industry interest in acquiring Barnwell.

On October 8 President Reagan issued his statment on Nuclear Power which contains the following language with regard to private reprocessing:

"I am lifting the indefinite ban which previous Administrations placed on commercial reprocessing activities in the United States. In addition, we will pursue consistent, long-term policies concerning reprocessing of spent fuel from nuclear power reactors and eliminate regulatory impediments to commercial interests in this technology.

"It is important that the private sector take the lead in developing commercial reprocessing services. Thus I am also requesting the Director of the Office of Science and Technology Policy, working with the Secretary of Energy, to undertake a study of the feasibility of obtaining economical plutonium supplies for the Department of Energy by means of competitive procurement. By encouraging private firms to supply fuel for the breeder program at a cost that does not exceed that of government-produced plutonium, we may be able to provide a stable market for private sector reprocessing, and simultaneously reduce the funding needs of the U.S. breeder demonstration program."

However, despite this announcement major impediments to reprocessing remain and create unacceptable risks for private investment. For example:

- the prospect exists that future Presidents may return to the Carter ban on reprocessing;
- the licensing of any nuclear facility by the Nuclear Regulatory Commission (NRC) cannot be assured and the obstacles in the way of near term licensing of reprocessing facilities are formidable;
- there are no regulatory or technical procedures for the management of high level nuclear waste; and,
- issues with regard to the solidification, storage and ultimate use of plutonium from a civilian nuclear facility have not been resolved and the application of NEPA remains uncertain.

Barnwell cannot be operated on a sustained basis until these uncertainties are removed. In other words, the same obstacles that for years have prevented Allied and its partners from making Barnwell a viable business will face any private interest seeking to acquire and operate the facility.

Since January, 1981, Allied officials have stated that unless Barnwell is transferred to the Federal Government in the near future, Allied will have to write off on its books the asset value of its investment in the facility. Indeed, Allied Chairman Hennessy stated at the time of the annual meeting of shareholders in April that such an action was likely, unless prospects improved.

In conclusion, the Barnwell plant could be a national and international asset and an important element in the ultimate success of the breeder reactor and waste management programs. The benefits of continuing the R&D program at Barnwell through FY'82 will be to provide an opportunity for any private consortium to come together for the purpose of evaluating acquisition and operation of Barnwell. It will enable Congress to complete action on a nuclear waste bill. It will also comply with the wishes, expressed in the Congress and by DOE Secretary Edwards, to preserve Barnwell for one more year in an R&D mode to decide what the facility's future role will be. However, at this time, it is the judgment of Allied management that there is little prospect for Barnwell to operate on a private basis in the near future and that the facility will probably have to be shut down at the end of the Government's FY'82 or earlier should FY'82 funding not be appropriated.

Allied Corporation
October 15, 1981

Appendix IV

Section-by-Section Analysis of S. 1662 Submitted by Witnesses

Department of Energy
Washington, D.C. 20585

October 16, 1981

Senator James A. McClure
United States Senate
Room 3121, Russell Senate Office Building
Washington, D.C. 20510

Dear Senator McClure:

During the October 6, 1981, hearing on Nuclear Waste Disposal, you requested Mr. Shelby Brewer to furnish you detailed comments resulting from a section-by-section analysis of S.1662.

The comments on S. 1662 are enclosed. It will also be made an insert on page 84 of the October 6 transcript. The transcript is currently being edited and will be returned to the Committee staff in the near future.

If you have any questions, please call Tom Pretorius of my staff on 252-4277. He will be happy to assist you.

Sincerely,

Thomas H. Pretorius
for Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosures

cc: Mr. Paul Gilman
Staff Director
Senate Energy and Natural Resources

Comments on S. 1662

GENERAL COMMENTS

1. Repository Siting Decision Processes

A) The Department believes that Presidential involvement in the decision to characterize a site would not be necessary or appropriate. The decision to characterize and evaluate a site should be based primarily on the technical merits of the site. Through their participation in negotiated agreements and through their review and comment on technical plans and assessments, States and Tribal Councils should have ample opportunity to publicly identify and have resolved by DOE technical concerns regarding the selection of sites for characterization. In any event, opportunity will always exist for Presidential review of DOE actions, and both the President and Congress will be involved at the time of site selection.

B) If the Congress is to make the final decision to sustain or reject an objection to waste facility siting, we believe that both Houses of Congress should be required to take action in the form of a Joint Resolution.

2. Test and Evaluation Facility

In order to comply with the S. 1662 proposed date of January 1, 1983, for submission of a T&E Facility proposal, including site-specific designs, specifications and cost estimates adequate to solicit construction bids, the Department estimates it would have to select a T&E site by January 1982. This would be significantly earlier than the dates by which potential repository sites are identified for detailed characterization according to the schedule in section 403(b)(1), hence potentially inconsistent with the requirement in section 407(b) that the T&E Facility be located at a site approved by the President for repository site characterization. A Department decision on the location of the T&E Facility (followed by preparation of a detailed site-specific proposal) would best occur subsequent to some detailed site characterization work at each of the candidate repository sites. Multiple proposals could be developed in parallel prior to a Department decision on the T&E Facility site, but such proposals would still require data from the ongoing detailed characterization work at the sites.

3. Milestones

While milestones need to be agreed on to confirm the Nation's commitment to nuclear waste disposal, they must be consistent with technical and institutional requirements which assure that the goal will be met. In this case the goal is a licensed operational repository available within a fixed timeframe. The Department believes that the accelerated milestones presented in S. 1662 could jeopardize the likelihood of our achieving that goal. The current DOE schedule reflects our experience over the last several years regarding such factors as (a) the time required to reach agreements with the states, (b) the time required to initiate and conduct geophysical tests such as borehole drillings and seismic tests (including time for contracting, obtaining land access and permits, etc.), (c) the time required to locate and evaluate existing data, and (d) the costs associated with above. The current schedule assumes that these processes run smoothly and that sufficient supporting resources are available. Acceleration of the schedule will allow less time to accomplish these activities, thereby potentially affecting the quantity and quality of data and analyses which will result. This could in turn also impact our ability to work with NRC and the states and could complicate, rather than facilitate, these activities. In some cases, the S. 1662 milestones would require renegotiating current agreements. (See for example, our specific comment on Section 403(b).) The situation is further complicated by pressures to reduce near-term Federal spending.

The specific risks and costs associated with each proposed S. 1662 milestone vary. Considering their importance and complexity, the Department believes they will be best communicated through staff level discussions and would very much like to initiate these discussions at the earliest convenience of the Committees' staff.

4. Financing

The Department supports the S.1662 proposed mechanism for financing critical waste management facilities and services. Because of the budgetary restraints imposed by the President's Economic Recovery Program, we cannot count on any increased funds in the Department's storage and disposal programs. The initiatives in this bill and their related schedules taken as a whole would require a greatly expanded level of effort if they are to be implemented. Therefore, the concept of funding the program on a pay-as-you-go basis as provided in S. 1662 is fundamental if mandated schedules and projects are to be achieved. We wish to point out two areas, however, in which these provisions could be strengthened. First, inflationary and technical uncertainties could cause actual revenue requirements to increase significantly. Provisions to adjust the 1 mil per kilowatt hour charge according to some inflationary index would help assure its sufficiency.

Second, we note that provisions are lacking for a final reconciliation of costs such that utilities ultimately pay only for their share of actual management and disposal costs. Without such provisions, we believe the charge may be discriminatory. For example, we believe actual costs to dispose of a utility's spent fuel or wastes will depend more on the number of packages (repository or storage space required) it generates than on the generated kilowatt hours attributed to each package. In other words, a utility that achieves a higher burnup out of its fuel to generate a given number of kilowatt hours will have fewer spent fuel assemblies to dispose of than a utility that generates the same amount of electricity but achieves less burnup. But both will be paying the same amounts into the Treasury fund. Unless provisions are made for a final reconciliation of charges based on actual costs, a utility would not be able to realize the potential disposal cost benefits associated with efficient fuel utilization. The S. 1662 financing section as now stands could be strengthened by the addition of authority for the Department to provide this reconciliation.

5. AFR's

The Department believes that the temporary storage of spent reactor fuel should remain the responsibility of utilities generating the fuel. Utility and industry efforts to provide the necessary facilities and services for this storage will be assisted by assurances that government facilities for final acceptance of wastes will be available within a specified timeframe. Accordingly, Title III and all further references to Federal provisions for interim spent fuel storage should be deleted.

COMMENTS ON SPECIFIC SECTIONS

101(m) We suggest revision to read, "Public confidence in the ability ..."

101(n) We suggest revision to read, "Federal Nuclear Waste Disposal programs could be made more effective by,

A) improving coordination ..."
B) integrating the views of ..."

201(3) We believe the word "as" was intended to be "or." The difference is very significant.

309 We consider it important that the last clause of the amendment be clarified to read, "... or spent fuel from foreign nuclear powerplants transferred under ..."

403(b) The date of mid-1982 to designate the first two sites for detailed characterization could probably be met by designating sites at Hanford and the Nevada Test Site. (Even on these two sites, there are some technical questions that are the subject of current studies and investigations concerning ground-water flow and in-situ rock stress). The designation of a third site by January 1983 would then have to be from among those areas underlain by bedded salt or salt domes that are currently being investigated. The current schedule, that has been discussed in some detail with the affected states of Utah, Texas, Louisiana and Mississippi, calls for this designation to be made by October 1983.

A clear understanding by the officials of affected states of the basis for the schedules, and of the way in which siting issues are to be investigated, is essential for consultation and cooperation between Federal and State officials. This principle was clearly delineated during recent conversations with officials of the states of Utah and Texas during which DOE sought a preliminary decision to concentrate investigations of bedded salt in either Texas or Utah by early 1982. Previous understanding by the affected state officials of the technical issues involved was such that an attempt to accelerate the schedule was seen as an effort to force a decision on the basis of inadequate information. DOE has now agreed to continue investigations in both states to develop the necessary data, currently estimated to be by May 1983. It will be extremely difficult to reverse this agreement.

404(b)(1) We suggest revision to read "(iii) plans for decontaminating and decommissioning the site if it is determined unsuitable for application for licensing as a respository and if any radioactive materials were used for site characterization; and"

404(d)(2) We believe the phrase that requires removal of any radioactive materials upon termination of characterization activities should be changed to say "upon termination of DOE activities at a site" to allow continued operation of the Test and Evaluation Facility if that facility is not at the site selected for a license application.

407(b) See general comment 4.(B).

501	The Department believes it will not be necessary, and may even be unproductive, to attempt to prepare within one year of enactment site-specific designs and specifications adequate to solicit bids for construction of an initial facility for an MRS system. Considering the potential benefits of collocating such a facility at a reprocessing site and considering that the urgency of selecting a site for such a storage facility is unclear, the Department believes it would be more prudent to develop a proposal with the level of detail requested over a three-year period. Such a strategy would allow a more reasoned consideration of the site to be proposed, orderly selection of a qualified architect-engineer through a competitive procurement, and a 2-year design study to provide site-specific designs and cost estimates which might be adequate to solicit bids for construction.
Title VII	The Department believes references to the Retrievable, Monitored Storage Facility should be deleted throughout.
Sec. 701(a)	The Department believes the phrase "or within 90 days of enactment of this Act" significantly confuses the requirements of this section and should be deleted.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CHAIRMAN

October 16, 1981

The Honorable James A. McClure, Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

We are pleased to submit additional comments on specific provisions of S. 1662 for the record of the October 6, 1981, hearings on radioactive waste management legislation. We have also enclosed general comments on S. 637.

I hope you will find these responses adequate for your purposes, but if you need additional information or clarification, please let me know.

Sincerely,

Nunzio J. Palladino

Enclosures:
Comments on S. 1662
and S. 637

cc: Sen. Henry Jackson

DETAILED COMMENTS ON S.1662

Section 305(a)(2)

Drafting error. The current language reads "The Secretary shall submit a license to construct..." Should read, "...shall submit an application..."

Section 308(b)

All activities in this section other than those in subsection (b) must take place within specific time periods. "Within a reasonable time..." invites litigation. We suggest specifying a period of 90 days.

Section 310

Drafting error. The reference to Section 303(a) is incorrect. Reference should be to Section 306.

Section 311(b)

The section requires the Secretary to encourage the development of "alternative technologies that can be licensed by the Commission on a generic basis." The NRC does not license technologies on a generic basis, but can approve a technology through rule-making. We suggest the following language: "alternative technologies that the Commission can adopt by rule..."

Section 313(a) and (b)

The Commission requests clarification regarding the use of the term "hearing board" in this section. Hearing boards generally operate under a delegation of Commission authority. Is it the intention of the Committee to place jurisdiction directly in a hearing board, and thus prohibit the Commission from conducting its own hearings? If not, we suggest using "the Commission" in place of "the hearing board" wherever it appears, which would permit the Commission to delegate its authority to a hearing board at its discretion under Section 191 of the Atomic Energy Act of 1954.

Section 402(b)

The Commission would appreciate clarification of the meaning and intent of the language in Section 402(b)(3) providing that the Commission "... shall limit the retrievability of the waste and spent fuel emplaced in the repository unless such action is needed to protect the public health, safety and the environment." We believe the basic design of a repository should be such that the waste should be so emplaced that a range of actions including retrieval could be taken during the period when the repository is being evaluated to confirm its performance. This period could be short or last a few decades. We would recommend that the law not deal with this design consideration. We hope that your intent is consistent with our position. Furthermore, Section 402(b)(3) requires that the Commission include criteria for a license amendment to decommission the repository. In our proposed regulation, we have dealt with decommissioning only in a general way, with the intent of augmenting the criteria in several years when we have more experience. We believe it is premature to define detailed decommissioning criteria at this time. Therefore, for both of the above reasons, we recommend that this provision be deleted from the proposed legislation.

Section 403(a)

We note that the bill requires the consideration of sites in several geologic media "to the extent practicable considering the schedule." The Commission prefers that sites in at least two media -- one of which is not salt -- be characterized, as required by the Commission's Part 60 regulations.

Section 404(a)

While Section 403 of the bill requires the Secretary to recommend three sites to the President as candidates for site characterization, it is not clear from the bill's drafting whether the President must approve more than one. If the President rejects any of the three sites recommended by the Secretary, the Secretary should be required to identify additional sites until at least three have been selected for characterization. We recommend the following language Section 404(a): "The Secretary shall carry out in accordance with this section appropriate site characterization activities for at least three sites that have been approved by the President under Section 403. "

Section 404(b)(1)(A)

The section requires the Secretary to prepare an environmental assessment of the site. The Commission requests clarification regarding the relationship between the assessment and NEPA requirements. Would DOE prepare the assessment in addition to the NEPA-required environmental impact statement, or in relief, or partial relief of such requirements?

Section 404(c)

In our testimony, we offered to provide language permitting NRC to advise DOE regarding the selection of tests necessary for a complete license application. We suggest the following: "The Secretary shall, in consultation with the Commission, conduct such tests as may be required to provide the necessary data..."

Section 405(e)

The Commission testified that the two years and nine months allowed for construction authorization proceedings is very tight, and the deadline will be very difficult to meet. Some additional detail regarding the tasks that, under current procedures, we must accomplish during this period may be of use to the Committee. Prior to the licensing hearing itself, the staff must review the application, prepare a preliminary safety analysis report, have it reviewed by the Advisory Committee on Reactor Safeguards and then issue the final report incorporating their comments. In addition, the staff must prepare a draft environmental impact statement, notice it for public comment, resolve the comments and issue a final statement. We estimate that the hearing itself will take a minimum of 20 to 24 months. It will be difficult to complete these tasks adequately under the proposed schedule. However, as we stated in our testimony, we will do what we can to avoid delaying the national program while fulfilling our statutory responsibilities to protect the public health and safety and the environment.

Section 407(d)(2)

The Commission has concerns regarding the timing of the preparation of the environmental impact statement for the T&E facility. The Commission recommends that the EIS be available to Congress when it reviews the Secretary's proposed design criteria.

Section 502

In order to reduce transportation links between facilities, the Commission recommends that consideration be given to locating long-term retrievable storage at the site of a future reprocessing plant or at the repository location.

Section 601

Drafting error. The reference to Section 308 is incorrect. Reference should be to Section 307.

Section 603

The Commission requests clarification regarding which costs are to be covered by the fund collected through the per kilowatt-hour fee on nuclear-generated electricity. The language specifies that such fee shall be used to cover only "the costs...for the long-term storage and permanent disposal..." It is not clear whether or not the funds collected through the one-time fee established by Section 303(a) would be transferred into the fund. Assuming the AFR funds are transferred, it is not clear where funds for the T&E facility and handling and transportation will come from. If those costs are also to be "borne by the direct beneficiaries..." as stated in Section 101(h), they should be specified in this section.

Section 703

Drafting error. The text of the resolution, while intended to respond to concerns of both State and Indian tribal governments, mentions only State and local concerns. The language should read, "State, local and tribal concerns."

Section 706(a)

Drafting error. The phrase "with respect to a reorganization plan," should be replaced with something that refers to the resolution regarding State, local and Tribal concerns regarding the proposal, such as "with respect to a proposed facility".

10/16/81

Commissioner Gilinsky's Comments on S. 1662 and S. 637

Section 312

This section authorizes the Commission to issue a license or license amendment to expand a spent fuel pool or transship spent fuel on an interim basis prior to the conduct or completion of any required hearing. This provision should be modified to make it clear that interim licenses should be issued only in those cases where the conduct or completion of a hearing prior to issuance of the license would force the reactor to shut down.

Section 313

I am concerned that the provisions of Section 313, which prescribes the procedures to be followed in hearings on spent fuel pool expansions and spent fuel transshipments, are overly prescriptive. The details of hearing procedures are usually specified in the agency's regulations rather than in a statute. The Commission has not had any experience in conducting hearings pursuant to the procedures specified by Section 313. While these procedures may result in efficient hearings, they may, for one reason or another, prove to be unworkable. If the Congress wishes the Commission to conduct the type of hearing described in Section 313, it should give the Commission authority to do so, perhaps specifying the minimum procedural safeguards to be applied. It would then be possible for the Commission to adjust the procedures in the light of experience without having to seek a statutory amendment.

ADDITIONAL VIEWS OF COMMISSIONER BRADFORD ON S.1662

The Commission has long been on record that the same requirements and procedures should apply to the permanent disposal of both military and civilian high-level waste. This bill, by limiting its provisions to civilian waste, could bifurcate the national waste program. This bifurcation might result in the preemption of superior repository sites for the military.

I also agree with the views of Commissioner Gilinsky concerning interim licensing and hybrid hearings.

GENERAL COMMENTS ON S. 637

Definition of Permanent Disposal

The proposed legislation ties the definition of permanence to the period of time the Commission determines is necessary for the radioactivity, heat generation and toxicity of radioactive waste to become equivalent to the radioactivity, heat generation and toxicity of naturally occurring uranium. We have some concern about using natural uranium as a standard. It may be very difficult to implement a requirement that the design life for a deep geologic repository be at least as long as the time needed for the specified characteristics of the waste to become comparable to that of uranium ore, because there is a wide degree of uncertainty inherent in establishing a benchmark based on this comparison. Since uranium ores vary in content and concentration, differing assumptions can be made about their radioactivity, heat generation and toxicity. Further, even if a standard ore could be agreed upon, its comparison to geologically-emplaced wastes would not account for differences in geochemistry, hydrology, and other safety-related factors bearing on the suitability of the wastes for the proposed host geology.
This uncertainty has been compounded by the International Commission on Radiological Protection's recent ICRP 30 document, which revises dose conversion factors in such a way as to extend the cross-over point of waste hazard and ore hazard to sometime on the order of thousands of years.

In facing the problem of setting a time requirement ourselves, we considered this approach along with a number of alternatives and selected a time period that we believe is consistent with the intent of this bill. The proposed technical portion of 10 CFR Part 60 sets forth a 1,000-year time period for the containment of radionuclides by the waste package. This number is based on the time required for the heat pulse from the wastes to peak and return most of the way to the ambient temperatures in the repository's host geology.

Definition of Safe Repository

The proposed legislation defines "safe repository" as "any underground facility for the permanent disposal... whether or not such safety is achieved solely by the characteristics of the medium in which the facility is located or by a combination of such characteristics with appropriate engineered structural containment, waste form and packaging, monitoring, and maintenance of such facility." Natural systems are difficult to characterize and any understanding of the site will have significant limitations and uncertainties. This understanding will be particularly limited in the area close to the emplaced wastes because, that area will be physically and chemically disturbed by the heat generated by those wastes. In light of these uncertainties, the Commission, in its proposed technical portion of 10 CFR Part 60, has placed an emphasis on the engineered features of the repository as well as the natural geologic environment, establishing separate performance objectives for these two components of a multiple barrier approach to waste isolation. The Commission believes that this approach will reduce some of the uncertainties associated with depending "solely" on the medium in which the facility is located, and will enhance our confidence in the ability of the repository to isolate the wastes.

Monitored Retrievable Storage

The proposed legislation requires the Secretary to develop a proposal for one or more safe repositories for the permanent disposal of high-level radioactive waste resulting from civilian nuclear activities. The design criteria for these facilities imply that they are subsurface, rather than deep geologic repositories, and would be similar to recent proposals for monitored retrievable storage facilities.

The Commission does not object to a long-term storage component in the national waste management strategy. It may be useful to allow more time to settle the reprocessing issue. In addition, there may be some technical advantages to allowing the waste to cool in a surface or subsurface facility prior to disposal in deep geologic repositories. The Commission is concerned, however, that such a long-term storage facility should not be a substitute for geologic disposal nor should it be permitted to detract from the repository program. The Commission therefore would prefer to see the geologic repository program remain the central element of the waste management program, rather than making it one of a number of alternatives for research and development.

OTA STAFF COMMENTS
ON
S. 1662: "NATIONAL NUCLEAR WASTE POLICY ACT OF 1981"

SECTION 102(a). PURPOSE

The exclusion of defense waste from the provisions of the bill may cause concern in some quarters. For example, the State Planning Council in its final report to the President recommended that "the program authorized by Congress should apply to all high-level and transuranic wastes regardless of their source. We will not gain public acceptance for a national repository program if the American people perceive that different programmatic and institutional procedures have been put in place for the disposal of wastes which, from the persective of public health and safety, are essentially the same." At the same time, this exclusion may be needed to break the current stalemate and get on with the job of dealing with the civilian waste problem. OTA's discussions with concerned parties on this subject suggest that such concerns might be alleviated to some (perhaps a considerable) extent if provisions were made to allow those responsible for defense waste management to sign contracts to purchase space in civilian repositories on the same basis as the utilities. This would be analagous to the current situation in which military and civilian space programs are institutionally separate, but in which the military can purchase services (e.g., use of the space shuttle) from NASA. In such a situation, the questions concerning strictly defense repositories would be moot until and unless these responsible for military waste decided to build one of their own.

This approach could be financially advantageous to the defense waste program, which could buy into the civilian program on an annual basis, rather than having to incur the large front end capital costs of developing a separate defense repository system. For the same reason, it could allay some of the concerns of those who think that separation of the civilian and military programs could lead to indefinite deferral of progress on disposal of defense wastes.

Technical reviews to date have identified no technical reasons why defense wastes cannot be disposed of in a repository that is suitable for civilian wastes. To avoid concerns that defense secrets might be revealed in the licensing process for a repository, it may be possible for the NRC to specify the maximum acceptable amounts of each radionuclide that can be contained in a single waste canister for a given repository design, and then to certify - based on a review in which the appropriate level of security is maintained - that the canisters delivered by the defense program to the repository do in fact fall within those limits.

If the committee wishes to allow this option, explicit provisions may need to be included now, since it could have some implications for the design of the repository system that need to be factored into the planning process at an early date.

SECTION 201. DEFINITIONS

(3) "Disposal"

This definition of disposal, combined with the definition of "repository" in (11), appears to preclude possible methods of disposal other than mined geologic repositories (such as subseabed emplacement, or space disposal) that might become available in the future. To the extent that the intent of the legislation is to preclude storage facilities as an ultimate solution to the radioactive waste problem (as Section 501 states), rather than to exclude other possible methods of disposal as well, the definition of disposal in the draft may need revision. The following definition of disposal could greatly clarify the committee's intent and eliminate the current confusion between "storage" and "disposal":

> The term "disposal" means the emplacement of radioactive waste in such a place and manner that permanent isolation will be provided by the action of engineered and naturally occurring barriers, with no need for continued human control, monitoring, and maintenance.

This definition is in accord with the normal English use of the word "disposal" which has the sense of "getting rid of" and giving up control over that which is disposed of; placing waste in a facility that requires perpetual care can not be seen as "getting rid of" it, and can more appropriately be referred to as storage. This definition of disposal does not preclude a period of retrievability and human access. It simply precludes reliance on human control as a necessary means of ensuring long term isolation.

This definition addresses what appears to be the basic value judgment to be made: whether or not a system that relies on human control and maintenance to ensure adequate isolation of the wastes is acceptable as an ultimate solution to the waste problem. The bill as it stands is ambiguous on this point. If the definition of disposal remains as stated in the draft, it appears possible that the Department of Energy could satisfy most, if not all, the requirements of the bill by constructing a subterranean storage facility that required continued human control and maintenance to ensure adequate permanent isolation of the wastes from the biosphere. If it is not the intention of the committee to retain that much ambiguity, a more precise definition appears to be necessary.

(12) "Storage"

The following would be a definition of storage that is consistent with the suggested definition of disposal:

> The term "storage" means the emplacement of waste in such a way that direct human control and access are maintained and that the waste can be recovered.

This definition is objective, in that it is based on the design characteristics of the system to which it refers, rather than on the intent with which the waste is emplaced, a subjective criterion which cannot be directly observed from inspection of the facility receiving the waste.

TITLE III - INTERIM STORAGE

SECTION 302.

(a) This section leaves to the Secretary the determination of when a power plant cannot "reasonably" provide adequate spent fuel storage capacity. It is unclear whether it is the intent of the bill to limit use of Federal storage to utilities that cannot provide additional space for strictly technical reasons (e.g. inadequate space at the reactor site, or inability to construct additional facilities in time to prevent a period of reactor shutdown); or whether considerations of cost of additional at-reactor storage compared to use of a Federal facility (suggested by Sec. 311.(a)(2)), or of local concerns (suggested by Sec. 311.(a)(4)), would also weigh significantly in the judgment. OTA's discussions with officials in states that might be candidate AFR sites indicate that a Federal AFR may be more acceptable to the extent that its use is limited to cases of strict need, in which the utility has no alternative to shutting down the reactor if the Federal AFR space is not available. If it is the intent of the committee that the Federal government would accept spent fuel only from utilities which are unable for technical reasons to provide such additional storage, then explicit language to that effect would be helpful. Unless there is a clear resolution of the conditions (if any) under which the Federal government will accept spent fuel for interim storage, utilities may be left with an incentive to defer making commitments to provide their own interim storage capacity in the expectation that the Federal government might provide an alternative later. Adoption of an unambiguous spent fuel policy appears necessary in order to give the utilities very clear signals about what they are expected to do. A federal commitment to begin accepting spent fuel from utilities at a repository on a firm date in the future, discussed below, could significantly ease utilities' problems in providing interim storage capacity until then.

(b) Ninety days is a very short period to develop and promulgate regulations of any sort. Six months to one year might be more feasible, and would allow more time for public discussion.

SECTION 303

(a)(2) Other things being equal, a Federal AFR should be able to charge less for storage than a comparable private facility because the Federal facility is immune to taxes, and has a lower cost of capital. Thus the availability of a Federal AFR that charges only a full cost recovery fee may discourage private ventures to provide AFR storage, since they would be at a financial disadvantage. If it is desired to ensure that the Federal storage facility not compete with private efforts to provide AFR storage facilities or to develop new technologies for utility use, the charge for the Federal facility could be set higher than the cost of any commercially available alternative, so that it would appear financially attractive only compared to shutting down the reactor.

SECTION 305

(a) A limit of 2800 metric tons may be more than adequate if use is limited to reactors which canot provide additional storage in new facilities. Both DOE and NRC projections of the need for AFR storage do not take into account the potential for either rod compaction or at-reactor dry storage, and thus may be rather high.

(2) The requirement that a facility used for the purposes of this Title be licensed could exclude the possibility of using space in existing Federal facilities (e.g., unused reprocessing facilities at Hanford) or in an integrated storage and disposal test and demonstration facility, discussed elsewhere. Such facilities could conceivably provide 1000 or more tons of storage capacity before 1986, when reactors begin to lose FCR if they cannot

provide additional storage. This could allow deferral of any decision to acquire and license an additional storage facility until such time as the feasibility and licensability of new at-reactor storage technologies had been demonstrated. Thus, the requirement that the Secretary submit an application to construct, acquire, or lease a facility by January 1, 1983 may force the acquisition of space that proves to be unnecessary.

TITLE IV DISPOSAL

REPOSITORY DEVELOPMENT SCHEDULE

The major objective of this bill appears to be to remove the nuclear waste problem as an obstacle to the use of nuclear power by taking firm actions that can build public confidence that the Federal waste management program is on track and that the job will get done. The means for accomplishing this is adoption of an accelerated schedule for the activities involved in identifying a first candidate repository site and taking it through the licensing process.

While the proposed program may have the desired effect on public confidence, we observed in our testimony of October 6, 1981 that the program will not necessarily ensure that an operating repository will in fact be available at the end of the process outlined in the bill. Because there is at this time no technical consensus about how sure we can be that a characterized site will survive the licensing process, there is a real possibility that the relevant agencies could meet every deadline specified in the bill, and still wind up at the end of the licensing process with a rejection from NRC and no operating repository. Thus the bill leaves utilities unclear about when they can plan to deliver waste to the Federal government, since there is some uncertainty about when a repository will actually be available, and since there is no explicit commitment to a schedule for the Federal government to begin accepting waste.

OTA's analysis suggests a modification that may make the proposed approach even more responsive to the needs and concerns of the nuclear industry in general and the utilities in particular, have greater positive impact on public confidence, and at the same time be more acceptable to those who are concerned that an accelerated schedule could compromise safety. That modification is to make a firm commitment in law to begin accepting waste from utilities on a conservatively estimated fixed and certain date by which we can have great confidence that at least one licensed repository will be available, even allowing for the almost inevitable delays and unforeseen problems. This date would not be the earliest possible date at which a repository might be available if everything went right, but rather a more cautious one that makes ample provision for contingencies. It would be a date such as might be selected by a private firm that would be held legally responsible for delivering contracted services on that date.

This approach involves a basic shift in focus from speed to certainty and commitment. It is based on the conclusion that what is vital in securing and sustaining public confidence is not how fast a repository can be made available, but rather how certain we can be that the repository will be available when the Federal government says it will be. What matters, therefore, is not whether a repository may be available a few years sooner or later, but whether it will be available according to a firm (as opposed to open-ended) schedule that is widely accepted (by utilities, environmentalists, and all other interested parties) as feasible and reasonable in view of the remaining technical and institutional uncertainties about the siting process. This conclusion is supported by recent testimony of Edwin A. Wiggin, Executive Vice President of the Atomic Industrial Forum, on the question of repository scheduling:

> "Over the course of the past three decades, we have seen the projected date for an operating waste

> repository move from 1970 to a 1997-2006 time frame. Although we believe it possible to shorten this schedule, as do the drafters of S. 1662, the precise date on which a repository becomes operable is not as important, in our opinion, as dispelling the public concern that these continuing delays have created." (Testimony before the Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works of the U.S. Senate, October 6, 1981.)

A more conservative schedule than that contained in the draft legislation may be more effective at dispelling these public concerns, particularly to the extent that it can gain broader support in the informed technical community as to its feasibility. At the same time, it could give greater assurance to the environmental community that corners would not have to be cut in order to meet the schedule.

The DOE reference schedule for a hard rock repository that was submitted to the NRC waste confidence rulemaking proceeding could provide a reasonable basis for choice of a conservative date to begin accepting waste from utilities at a repository. According to this schedule, the first license application would be submitted by 1988, a decision on a construction authorization reached by 1992, and operation begun by early 2000. It is important to recognize that a repository could in fact be available earlier than this (by 1998) if the first site selected for licensing is a salt site (which reduces the time required to construct the repository), and if the first site does in fact receive a license. However, a schedule that allows for contingencies, such as rejection of the first candidate site, may be more credible than one which can only be met if there are no unanticipated problems and if the most optimistic predictions of the ease of finding a suitable site turn out to be correct. The DOE reference schedule for a hard rock repository may provide ample room for contingencies, particularly if adequate resources are also made available to permit an expanded and more redundant multiple site screening, characterization, and licensing program that can ensure that backups to the first candidate site will be available as needed.

Adoption of a somewhat less optimistic schedule than that contained in the draft bill would not in any way represent a weakening of Federal determination to resolve the waste disposal problem, as long as it was accompanied by a firm commitment to begin accepting waste at a licensed repository site on the target date. Indeed, such an explicit commitment would represent a strengthening of Federal determination, which could give the utilities and the general public a realistic basis for believing that the job will get done within a reasonable time. It would demonstrate that, this time, the Federal government is firmly committed to a predictable and reliable resolution of the waste problem.

One source of increased confidence would be the expanded and more intensive program that would be needed to ensure that even a more conservative target date could be met with certainty. While the more redundant siting effort that would probably be required to ensure that at least one licensed site was available by the target date would increase the front-end cost of developing the repository system, the extra cost can be viewed as insurance against the risk of being unable to deliver on a firm commitment. In any case, the provisions in this bill for financing the waste management program through disposal fees collected from the utilities should effectively eliminate resources as a constraint on the program.

The redundancy in the siting process needed to ensure successful licensing of at least one site by a conservative target date should alleviate the concerns of those who fear that an accelerated repository development process could lead to a premature commitment to a less-than-satisfactory site simply because of the lack of any suitable alternative. Thus a firm commitment to a fixed but conservative date for a licensed repository may be able to gain broader support than an accelerated schedule for those actions which (it is hoped) would lead to a repository at an earlier date.

Second, this approach should be able to avoid some of the potential risks of an accelerated schedule. For example, adoption of a schedule that is significantly different from the one that has been the basis for DOE planning, public discussion, and NRC consideration in the waste confidence rulemaking could create the impression of yet another flip-flop in Federal waste management policy, rather than an impression of stabilization. In addition, such a schedule could create an impression in some quarters that safety was being compromised, which could in turn lead to continued efforts to delay or change the schedule yet again, as well as to criticisms of the program that could increase, rather than reduce, the doubts of the general public. Finally, an effort to accelerate the schedule of development of a technology and related licensing process for which we have no previous experience increases the risk of real or perceived failures that could reduce, rather than enhance, public confidence in the Federal waste management program. Recent testimony by James F. Devine, Assistant Director of Engineering Geology of the U.S. Geological Survey, is relevant to this point:

> "The types of information needed for site characterization and performance evaluation for licensing are fairly well understood by the interested agencies; however, the time required to perform the tests to obtain this information is uncertain. Neither a repository nor a test and evaluation facility has ever been built, characterized, or licensed. Not all of the geologic, hydrologic, and engineering test procedures have been designed and field tested for these investigations. The site characterization phases will be a learn-as-we-go procedure in which we cannot accurately predict schedules. To complicate the scheduling, sociopolitical aspects of state and public participation can also impose unplanned delays in obtaining technical information." (Testimony before the Committee on Energy and Natural Resources, and Environment and Public Works, of the U.S. Senate, October 6, 1981)

Adoption of an accelerated schedule in the face of this uncertainty poses three major risks. First, it may lead to premature decisions (e.g., selection of the first candidate site, and NRC action on the license application) which could increase the chances that the final NRC action on the first site will be unfavorable. Considering the great political importance that is being attached to the first repository, the negative effects on public confidence of rejection of the first site could be severe, especially if it had been preceded by considerable optimism about the ease of developing a repository. Second, slippages in the schedule could occur if deadlines simply cannot be met, which could call into question the credibility of the entire schedule, particularly if the slippages occur in the early stages of the process. Third, to the extent that the feasibility of an accelerated schedule is questioned by the technical community and the involved agencies, the responsibility for real or perceived failures resulting from the schedule will be shifted to some extent from the involved agencies to the Congress. This could reduce the extent to which the agencies can be held accountable for progress, compared to a situation in which the agencies themselves have developed and certified the feasibility of the schedule which they are to meet. Adoption of the DOE's estimated schedule for a hard rock repository as the basis for choice of a date to begin accepting waste could ensure that responsibility for the feasibility of the schedule is placed squarely on the implementing agency.

SECTION 403. IDENTIFICATION OF SITES

(b) The proposed schedule could force identification of salt site (from among the candidates in Texas and Utah) before the current DOE schedule of May 1983 which has been the basis for its dealings with the two affected states. This could cause some problems in the relations with those states.

SECTION 405. SITE APPROVAL

(B) Because of the "learn-as-we-go" nature of the site characterization process for the first sites examined, specification of such an early date for choice of the first candidate site for licensing could force a choice on the basis of inadequate information about which site actually has the best chance of success in the licensing process. Greater flexibility at this stage, while maintaining a fixed target date for the operating repository, could reduce the likelihood of later delays that could result from rejection of the first candidate site.

(c) By requiring only that the Secretary submit an aplication for a construction authorization, this section appears to assume that the NRC's action on the first license application will be favorable, and a construction permit will be granted. However, there is a real possibility that the first site will be rejected. To minimize the delays that could occur in this event , it may be useful to require that at least one other suitable site be identified, and preparations made for licensing, during the time that the Commission is considering the application for the first site.

(e) Reducing the time allowed for NRC consideration of the first-ever application for a construction permit for a geologic repository from the four years now considered feasible to three years may increase the risk that the NRC decision will be negative, either because of limitations in available data and analysis resulting from the accelerated site identification and licensing process, or because of inability to adequately resolve technical issues in the licensing process quickly enough to permit an approval of the site on such a short schedule. It also appears likely to produce substantial opposition, rather than broad support, from those who see the licensing process as the major factor ensuring the safety of the repository development program.

SECTION 402. DEVELOPMENT OF EPA STANDARDS AND NRC TECHNICAL CRITERIA

(a) Environmental Protection Agency.

As discussed in the written testimony submitted to the committee on October 6, 1981, the proposed schedule for promulgation of final standards by EPA may be unattainable, and in any case could lead to premature commitment to standards which are still the subject of dispute. The alternate approach of requiring rapid publication of the proposed standards for discussion, followed by an extended period of public review (up to a year) to be coordinated with review of the proposed NRC technical criteria, could serve to build public understanding and acceptance of the regulatory standards, while at the same time reducing the likelihood of premature locking in of standards which could require future revisions.

(b) NRC Technical Criteria

Public confidence in the regulatory process could also be increased by requiring that the final EPA standards be promulgated before the NRC promulgates its final technical criteria which are intended to insure that the EPA standards are met. The current situation, in which the proposed NRC criteria have already been published for discussion, before the same action has been taken for the EPA standards which the NRC criteria are supposed to implement, may raise some questions in the minds of observers about the degree of coordination in the Federal waste management program.

For the same reason, the committee may wish to consider recommending or requiring that a final decision in the ongoing NRC waste confidence proceeding be deferred until after both EPA and NRC final regulations have been promulgated. This could avoid the appearance of inconsistency that could result if NRC were to make a finding about the likelihood of ultimate safe disposal of radioactive waste before it had even made a final decision about what is required for safe disposal. The credibility of the decision in the confidence proceeding could be further enhanced if it were made on the basis of a review of an approved Management Action Program showing precisely how the Department of Energy plans to ensure that at least one licensable site will have been submitted to the NRC in time to provide a licensed repository on schedule.

SECTION 407. TEST AND EVALUATION FACILITY

(a) Selection of a site for a Test and Evaluation facility two years before selection of the first candidate repository site creates some risk that the repository site may be different from the one for the T&E facility, and at the same time may raise concerns that early choice of a T&E site and initiation of construction may bias the choice of the repository site. Deferring the start of construction of the T&E facility until after the Secretary's selection of a site for the repository would eliminate these potential problems at the cost of up to two years' delay.

General comments on the T&E facility

Many of the objectives of the T&E facility could perhaps be accomplished, and some of its problems avoided, by a modified approach involving the following elements:

*Earlier performance of those site specific tests needed for thorough site characterization, using hot waste where appropriate, at all of the sites being characterized, as authorized in Section 404(d)(1). This eliminates any appearance of bias in the site selection process; provides more information about each site to allow a better choice of a candidate repository site and to increase the likelihood that it will receive a construction permit; and assures that well-characterized backup sites will be immediately available in the event that the first site is rejected for any reason.

*Rapid development of an integrated storage and disposal logistics T&E facility at a site that is unusable for a repository, as suggested in our written testimony submitted on October 6, 1981. Their could be accomplished by appropriate modifications of Title V to allow an integrated facility dealing with both storage and disposal logistics. This could provide earlier evidence of progress than would a facility built at a site which would not be identified for three years, and could provide logistics experience in time to affect the repository design submitted at the time of application for a construction permit.

*Use of a modular development process for the repository, in which construction of the repository and emplacement of waste would proceed simultaneously after the construction permit is granted. This could allow emplacement of significant quantities of waste in the repository much earlier than is now contemplated in the proposed DOE schedule, in which construction of the surface facilities and a significant fraction of the underground excavations is completed before any waste is emplaced, a construction process that requires six to eight years depending upon the medium. This would allow early validation at the repository site of the results from the logistics test facility concerning emplacement procedures, in time to make appropriate modifications to the repository system design before completion of the surface and subsurface facilities. Discussions with NRC staff have indicated that this might be quite possible within the context of the procedural regulations that have already been issued. If so, it may be possible to begin emplacement of waste in a repository within about a year of the time contemplated in the proposed schedule for the T&E facility, without raising the same concerns about its potential effects on the licensing process. In this approach, the functions of the T&E facility would be performed during the initial stage of repository development following assurance of a construction authorization by NRC.

SECTION 408. National Site Survey Program

(c) The Committee may wish to consider adding a specific requirement that a second repository, sited so as to minimize waste transportation to the extent possible consistent with disposal safety, be available within a specified time - say five years - after the first repository. If this is not required, there will be strong budgetary, bureaucratic, and probably political pressures to defer the costs and problems of licensing and developing a second repository until the first has been filled. Additional discussion of this point is found on pages 12 through 15 of OTA's written testimony submitted on October 6, 1981.

TITLE V - LONG-TERM STORAGE

As discussed above (and at greater length on pages 18 through 22 of OTA's testimony of October 6, 1981), it may be useful to have an integrated storage and disposal logistics test and evaluation facility at a site that is excluded from development into a repository. This could be allowed within the context of this title, with appropriate modifications to include demonstration of disposal logistics as well as storage. However, since this would be a limited scale RD&D facility, it may be appropriate to drop the requirement in Section 503(c) that it be licensed. It could, of course, be used to develop the data base and experience for licensing both dry storage and geologic repositories. With regard to the latter, it may be possible to use the section of the facility used for tests of emplacement into a repository as the site for a dry run of the repository licensing process, in order to identify and begin working out the problems in the licensing process as soon as possible. Since the site would be selected so that expansion into an actual repository would be precluded by site exclusion criteria, it might be possible for DOE and NRC to work together in a more collaborative atmosphere than would be possible in a site that had the potential of becoming the subject of a formal licensing process.

Modification of Title V to provide for development of an integrated storage and disposal logistics T&E facility could add flexibility to the waste management program by developing the technology that would allow extended dry storage at a repository site at a small incremental cost (since it could make use of the handling and packaging facilities that would be needed for the repository in any case.) In this way, future waste managers would have the choice of emplacing waste in a repository as soon as it becomes available, or into surface storage at the repository site for an extended period prior to disposal (e.g., for cooling, or to maintain access to spent fuel), if that appears advisable at the time. This would clearly separate the question of when it is desirable to have the capacity to dispose of waste or spent fuel (i.e., when it is desirable to have a repository) from the question of when it is desirable to use that capacity to dispose of anything irreversibly.

Focusing the storage technology development program on technology that can be used to provide extended storage at a repository site, rather than on independent storage facilities, appears to be most compatible with the commitment in S. 1662 to development of a repository on a predictable schedule. The tight schedule proposed in S. 1662 for development of a design for a initial licensed storage facility appears more consistent with an intention to be able to move quickly to the construction of such a facility before a repository site is available; and would probably not allow time for development and testing of a technology that could be integrated with the repository packaging and handling system. Construction of a licensed extended storage facility of any substantial size before a repository site is available could create an impression of lack of confidence that the repository schedule could in fact be met, and could have a negative effect on the schedule by providing a cushion that would make it easier to defer some of the capital costs of the repository program when the budget is tight. Development of a limited scale unlicensed storage and disposal T&E facility at a site which could only be used for a limited period for test purposes, could avoid these potential drawbacks, while at the same time providing some Federal capacity to accept spent fuel from utilities on an emergency backup basis. Assurance that such a facility would in fact be used only for a limited period would be enhanced by a requirement that the waste or spent fuel used in the tests be moved to the first repository as soon as it is available. Such a requirement would be consistent with a plan to use the packaged waste or spent fuel from the test facility as the radioactive material is to be emplaced in the repository either during a T&E phase before licensing, or in the initial stage of a modular development and licensing process (discussed on pages 18 and 19 above.)

TITLE VI - FINANCIAL ARRANGEMENTS

OTA has concluded that the assurance of adequate and stable funding is central to the credibility of any long-term Federal waste management commitment. The provisions in this Title represent an important and very creative step in this direction, a step that is crucial if a firm schedule, rather than the availability of resources, is to be the principal factor shaping the waste management program.

SECTION 601(b)

Financing the waste management program through a fee on nuclear-generated electricity assures the availability of an adequate source of revenues for even the expanded program that may be needed to meet a firm schedule. However, it does not by itself assure that the revenues will be available for expenditure as needed. The requirement that capital expenditures from the nuclear waste fund be explicitly approved in appropriation legislation may create pressures for deferral of large capital expenditures in years in which the Federal budget is particularly tight. This may be inconsistent with the assurance of predictable annual funding that is needed to ensure that a long-term firm schedule for development of a waste management system can be met.

A possible alternate approach would be to require the development of a detailed Management Action Program that would be explicitly approved by Congress, as discussed earlier. This would give Congress the opportunity to approve a detailed long-term plan for the program expenditures required to achieve the objectives of the act. The responsible agency could then be given the authority to make annual expenditures from the fund as provided for in the Management Action Program, while Congress could exercise annual oversight to ensure that the program was being carried out as planned. Congress could also control the debt ceiling of the agency, as is now the case with TVA, and as provided in Section 602(b).

SECTION 603.(a)

The use of a fixed charge of one mil per kilowatt hour raises several potential problems. First, there is no provision for the effects of inflation. All analyses to date of fee collection mechanisms, and expected program costs, have assumed that the fee could be revised annually to take inflation into account. It is not clear that the proposed fixed fee would be adequate to cover costs in the long run unless some inflation adjustment procedure were included. Second, since the proposed fee is not directly tied in any way to expected program costs, there is some risk that a form of Parkinson's law would come into effect, with expenditures expanding to exhaust the available revenue.

A modification of the proposed approach that could avoid these potential problems would be to first develop a detailed Management Action Program that lays out all of the activities and expenditures that will be needed to accomplish the objectives of the act, and use that as the basis for the calculation of the kilowatt hour surcharge needed to provide adequate revenues from projected generation of electricity by nuclear power plants. The fee could then be revised as needed to correct for inflation. Since the waste management agency would in effect be a public utility with a mandatory fee on its users, it may be desirable to have an independent body, such as the Federal Energy Regulatory Commission, review and approve proposed fee increases to insure that they are not used to cover the costs of bad management, rather than the effects of inflation.

The Committee may also wish to consider including a provision that would direct the Secretary to sign contracts with utilities, as the fee is paid each year, to take delivery of the waste generated that year on a specified date in the future, after a repository is expected to be available. The use of such contracts for disposal services has the advantage of creating a legal obligation for the Federal government to deliver the disposal services as provided in the contract. It also forces careful planning of the anticipated delivery and repository loading schedule, since each contract would presumably specify a date on which the Federal government would take possession of the waste which the contract covers. This planning would be facilitated by explicit commitment in law to a specific date on which the Federal government would begin to accept waste on an operational basis from utilities. Early development of an integrated, comprehensive management action program, as discussed earlier, would provide a solid basis for this planning, as well as for determining the fee that must be charged to cover the full costs of developing and operating the Federal waste disposal system.

The proposed use of a charge per kilowatt-hour may be more equitable to ratepayers than a charge per metric ton of discharged spent fuel, the approach proposed in the past by DOE. The reason is that the amount of electricity generated in a year is a rough measure of the amount of long-lived fission products and transuranic elements in the spent fuel, which in turn determines the heat output of the spent fuel (or the solidified high level waste produced by reprocessing the spent fuel). The heat output of the waste is a major determinant of the amount of waste that can be placed in each canister, and the total amount of waste that can be emplaced per acre of repository space, which in turn affects the cost of disposal. Spent fuel elements from different reactors (or the same reactor at different times) can differ significantly in "burnup" (a measure of the efficiency of use of the fuel, or of the electricity generated per ton of fuel), and thus in their content of fission products and transuranics and the resulting heat output. (The current nominal burnup of 33,000 megawatt days for PWR fuel, optimized on the assumption that reprocessing would occur, is expected to be increased, perhaps to 40,000 - 50,000 megawatt days.) Thus a fixed charge per metric ton of spent fuel, regardless of its heat output, could overcharge low burnup spent fuel compared to high burnup spent fuel, while a charge per kilowatt hour is more closely related to the amount of heat-generating waste that must be disposed of.

ADDITIONAL COMMENTS

Advisory Committee on Repository Safety

The Committee may wish to consider the creation of an Advisory Committee on Repository Safety, made up of individuals with technical expertise in relevant areas such as geology, rock mechanics, hydrology, and system modeling, to fulfill the role in the NRC licensing process that would otherwise be performed by the Advisory Committee on Reactor Safety. This could facilitate the licensing process, and increase public confidence by ensuring adequate peer review of each step of the repository development process.

Management Action Program

The requirement for an explicit schedule for all the actions that must be taken by the involved agencies to develop a repository on time could increase public confidence that the job will in fact get done. As we observed in our testimony submitted to the committee on October 6, 1981, OTA has concluded that rapid development of a credible Management Action Program is one of the most important necessary steps for building public confidence in the Federal waste management program. The Committee may therefore wish to consider the inclusion in S. 1662 of the following provisions:

*Require the development of a single Management Action Program document that brings together in one place a coherent schedule for all of the technical and institutional actions needed to achieve the objectives of the legislation. The work that has gone into the as-yet-unpublished draft National Plan for radioactive waste management should allow development of a detailed Waste Management Action Program within about two years. A recent NASA internal review of the sources of cost and schedule overruns in a number of its projects suggests that the time taken to develop a detailed project implementation program is very well spent.

*Require explicit approval of the Management Action Program by the Congress. This could lend credibility and authority to the program, and the act of approval could itself represent an early major milestone in the Federal waste management effort. Approval could be accomplished either by giving either House of Congress an opportunity to reject the proposed Management Action Program (as provided in H.R. 1993), or by requiring that Congress take positive action to approve it. While the latter approach could increase the risk of delays resulting from failure to approve the plan, it would for that very reason increase the incentives for the Administration to develop a plan that would gain broad support, and could also increase the public stature of the plan once approved.

INTERAGENCY COORDINATION

SECTION 101(n) correctly concludes that one reason for the ineffectiveness of Federal waste disposal programs has been inadequate interagency coordination at the operational and policy levels; and Section 102(e) states that an objective of the bill is to improve coordination of Federal nuclear waste management programs. However, there are no specific provisions to deal with the problem of coordination, particularly at the policy level. It seems clear that, if a firm schedule for development of a repository is to be achieved, coordination of agency policies and actions will be even more important in the future than they have been in the past. Tight and closely coordinated schedules will have to be developed for all of the involved agencies, working agreements among them will have to be developed, and action taken to ensure that each agency meets its particular deadlines. The history of the waste program gives little reason to be sanguine about the prospects that sufficient coordination will be achieved in the future unless specific actions are taken to ensure that such coordination will occur.

Development, and approval by Congress, of an integrated Radioactive Waste Management Action Program document that includes both the technical and institutional steps required from each agency in order to meet the goals of legislation, as suggested earlier, could be an important step in this direction. But the question then arises of who should be responsible for developing the plan? While the Department of Energy, as the lead agency for radioactive waste management, is the logical candidate, there are disadvantages to DOE responsibility for development of the plan. For example, leadership by the DOE might create a real or perceived imbalance between the regulatee (DOE) and the regulator (NRC), particularly if DOE has the power to make the final decision on the deadlines for actions of other agencies including the NRC. In order to build trust in the Federal government's waste management program, it may be valuable to avoid any actions which could create even the appearance of compromising the integrity of the NRC in this area. In addition, if Congress wishes for various institutional options for implementing the waste management program (e.g., a public corporation with independent financing) to be developed in parallel with the Management Action Program, (as discussed on pages 24 through 26 of OTA's testimony of October 6, 1981) it may be inappropriate for the current management agency to be responsible for that task.

A possible alternative would be to create an interagency council for the specific and limited purpose of overseeing the development of a National Radioactive Waste Management Action Program to be submitted to Congress for approval on a specified date within two years. The function of such a council would be quite different from that of the Interagency Review Group, which was created to undertake a comprehensive review of radioactive waste management policy under the Carter Administration. The council would have the specific, well-defined task of overseeing the development of an integrated government-wide implementation program for a set of explicit nuclear waste management goals and objectives enacted in law. In contrast, the IRG focused most of its efforts on simply developing an agreement on goals and policies within the Executive branch, and did not develop an implementation program for those agreements that were reached.

One possible precedent is the National Aeronautics and Space Council, chaired by the Vice-President during the Kennedy Administration, which played an important role during the early days of the Apollo program. Chairmanship by someone within the Executive Office of the President (e.g., the Vice-President, or the director of the Office of Science and Technology Policy) could both signal a high level of Presidential interest in the resolutiion of the radioactive waste problem, and help to preserve the reality and appearance of balance between the implementing and regulatory agencies.

In addition to overseeing the preparation of a management action program, such a council could also direct a coordinated review of EPA and NRC proposed safety criteria (suggested above), a task which is not particularly appropriate for the Department of Energy in any case.

To avoid creation of another permanent governmental entity, such a council could be established with a sunset provision that would ensure that it would go out of existence once a management action program had been approved by Congress. A determination could be made at that time whether the Council should be continued as-is, or in modified form, to oversee the Federal government's implementation of the program, and to help ensure that each agency will have both the resources and the incentives to meet its own particular deadlines.

The history of the space policy precedent mentioned above suggests that such interagency councils are not particularly effective unless there is in fact a high level of interest in the subject at the Presidential level. However, if such interest exists, such a council can serve as an effective focal point for developing a coordinated government-wide policy; and its creation could be seen as a clear signal to the public that the Federal government seriously intends to get its own house in order with respect to nuclear waste policies and programs at last. If such a council were charged with the task of developing a set of integrated policies and implementation plans for all radioactive wastes, not just commercial high level wastes, it could also help to allay the concerns of those who fear that legislation dealing only with commercial waste could lead to indefinite deferral of action in other areas of waste management.

Section-by-Section Comments on S.1662
Submitted by
The American Nuclear Energy Council
The Edison Eelctric Institute
The Utility Nuclear Waste Management Group

Title I. FINDINGS AND PURPOSE

Title II. DEFINITIONS

Sec. 201(3) This section, which defines the term "disposal" should read "the long term isolation of radioactive waste or spent fuel...", instead of "radioactive waste as spent fuel..."

Title III. INTERIM STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS

Sec. 301(a). This section sets forth the policy of the Federal government with regard to interim storage of spent nuclear fuel. Subsection (a)(1) places primary responsibility for providing such interim storage on the individual utilities, calling for the maximization "to the extent practical" of new or existing on-site facilities or by privately owned off-site facilities. Subsection (a)(3) then places the responsibility for such interim storage on the Federal government in the case of power plants "that cannot reasonably provide adequate storage capacity" on-site, "when needed to ensure the orderly operation of the power plant".

The words "practical" and "reasonably" should be more clearly defined, either in the statute itself or in the legislative history, to take into account such factors as economic and regulatory considerations, the continued operation of the powerplant, and the protection of public health and safety.

Sec.301(b). This section provides for the establishment of a Federal system of interim spent fuel storage for those nuclear powerplants that cannot "reasonably" provide adequate on-site storage, and calls for the use of new and existing on-site spent fuel pools where "practical". Again, these terms are needlessly vague and should be more precisely defined in the manner stated above.

Sec. 302(a) and (b). Subsection (a) authorized the Secretary to enter into contracts with utilities which the Secretary, pursuant to subsection (b), determines cannot "reasonably" provide adequate spent fuel storage. "Reasonably" should again be defined to include the factors mentioned above. Further, the

Secretary should have the sole discretion, consistent with the established criteria for a finding that a utility can or cannot reasonably provide adequate interim storage capacity, to make that determination. Moreover, such determinations shall not be subject to NRC licensing procedures. Only the aggrieved owner of spent fuel should be granted standing to challenge a finding of reasonability, in order to ensure that this provision will not become a point at which outside contentions and delays can disrupt the waste management process.

Sec. 302(a)(1). This subsection should provide that the Federal government will "take title, at the reactor site, to such amounts of spent fuel from the powerplants as the Secretary determines cannot be stored on-site".

Sec. 303. The language providing for contracts appears to be appropriate.

Sec. 304. The provision for notice of intent to enter into contracts appears to be appropriate.

Sec. 305(a). This section provides for the lease, acquisition or construction by the Federal government of one or more away-from- reactor facilities for the interim storage of spent fuel from civilian nuclear powerplants with a total storage capacity at all such facilities of not more than 2800 metric tons.

The 2800-ton ceiling imposed by this section may underestimate the actual need for interim spent fuel storage capacity. Consequently, we suggest that either (1) the ceiling be eliminated altogether, or, in the alternative, (2) that the Secretary be given the discretion to raise the ceiling at a later date, should the 2800-ton capacity prove insufficient.

Sec. 305(a)(2). This section concerns the licensing of an away-from-reactor interim storage facility. The Commission is specifically charged not to consider the need for such a facility or alternatives to the facility, in determining whether to issue a license for a facility. In the same vein, we suggest that the Commission should similarly not be required to consider the issue of alternate sites available for an interim storage facility. The only issue before the Commission should be whether the public health and safety and the environment are protected during the operation of the interim storage facility.

Sec. 306. This section requires the Secretary to take possession of spent fuel for interim storage upon 30 days' notice by the utility. A 30 day notice provision may be unrealistic, curtailing the Secretary's ability to schedule the removal of spent fuel for all customers. Consequently, we would not oppose a longer lead time, of from 180 to 365 days. This would combine the required certainty of removal for the planning purposes of the utilities with a time frame amenable to rational and orderly planning of spent fuel transportation by the Department of Energy. Priority should be given to those utilities with most critical needs so as to ensure orderly operation of the power plants involved.

Sec. 307. This section, which authorizes funds to be made available to the Secretary to carry out the purposes of section 305 (which authorizes the construction, acquisition or lease of an interim storage facility, and the transportation of spent fuel to such a facility) should be amended to authorize the appropriation of funds from the appropriate fiscal years.

Sec. 308(b). This section gives the Governor of the state in which a site for an interim storage facility has been selected the right to object within a reasonable time to such a facility. We suggest that "reasonable time" be defined as 90 days. Since work must be suspended at that site pending a Presidential determination that the facility is essential to the national interest, the Governor should be required to respond within 90 days.

In order for this procedure to contribute to the accomplishment of a reasoned outcome, the Governor should be required to submit substantive precise comments in support of his objection, and a recommendation as to steps that should be taken to accomodate his objection. The Secretary shall then either adopt the Governor's recommendations or suspend further work on the facility. The recommendations of both the Secretary and the Governor should then be promptly transmitted to the President.

Sec. 308(c). This section provides for the Presidential override or acceptance of a State veto of a selected site. Within 90 days after receipt of the comments and recommendations of both the Governor and the Secretary, the President should determine whether work on the facility should recommence, and whether the recommendations of the Governor or the

Secretary should be adopted. This legislation should provide that this determination should not be subject to judicial or administrative review.

Sec. 309. This language appears to be appropriate.

Sec. 310. This section subjects transportation of spent fuel to licensing and regulation by the Commission alone. While the Commission has certain responsibilities regarding the transportation of spent fuel, especially in packaging and security, the Department of Transportation shares this jurisdication over certain aspects of transportation, including, e.g. the routing of shipments. The bill should acknowledge the Department of Transportation's role.

Sec. 311(b). This section authorizes the Commission to establish a cooperative program to encourage the private development of alternate on-site storage technologies. We recommend that the final sentence, which appears to favor spent fuel storage casks, over other alternate technologies, should be deleted.

Sec. 312. The subject material is needed and appropriately covered in the Bill language.

Sec. 313. We suggest that the reference to the construction of a new pool site in this section be deleted, since it may not be practical at some power plant sites.

Sec. 314. the subject material is needed and appropriately covered in the Bill language.

Title IV. DISPOSAL OF HIGHLEVEL RADIOACTIVE WASTE AND SPENT FUEL FROM CIVILIAN NUCLEAR ACTIVITIES.

Sec. 401. we recommend that the legislation address the disposition of commercially generated TRU waste.

Sec. 401(b)(3). We suggest that the word "intergrated" be inserted after the word "one" in line 2 of this section.

Sec. 402. EPA standards and NRC regulations are needed and appropriately covered.

Sec. 402(b). The repository should be evaluated on the basis of the total system of barriers rather than individual barriers. Therefore we recommend that the words "a system of" be inserted after the word "of" in line 23 of this section.

Sec. 403. The provisions for site identification are needed and appropriately covered in the Bill language.

Sec. 404. This section deals with geologic repository site characterization. Subsection (b)(1)(A) requires the Secretary to submit to the Governor of the affected state and to the Commission, before sinking shafts at any site, an "environmental assessment of the non-radiological impacts of the site characterization activities planned for such site". It is important to make clear at this point that no new substantive environmental law is being enacted but rather that this subsection is simply calling for environmental assessments which are to be prepared in implementing the National Environmental Policy Act of 1969 and leading to the preparation of an Environmental Impact Statement for the site recommended to the President.

Sec. 404(b)(C). We are of the opinion that it is premature to include a description of possible forms of packaging in the plan and suggest that this section be deleted.

Sec. 404(d)(1)(A). Regarding the use of radioactive materials, the Secretary should be permitted to determine, in consultation with Commission, the need for its use. The words "Secretary in consultation with the Commission shall determine" should therefore be inserted in the second line of the section after the word "the" and in lieu of the word "concurs".

Sec. 404(d)(1)(B). The designation of ten metric tons in this section is arbitrary, imprecise and not necessarily supported on a technical basis. We suggest the deletion of the words following the word "repository" in the second last line to the end of the section.

Sec. 405. This section concerns site approval and construction authorizations for a permanent nuclear waste repository. Subsection (a) grants the Secretary authority to submit to the President a recommendation that a site for the development of a repository be approved. This is the point at which a full-scale environmental impact statement ("EIS") pursuant to the National Environmental Policy Act should be required. The legislation should provide for one EIS only, pursuant to NEPA. We recommend that DOE be designated as the lead agency coordinating with other agencies. Since NRC is contemplating requiring an EIS under 10 CFR Part 60 procedures no further EIS should be required thereby eleminating duplication.

Title IV in general, attempts to deal with the decisional points requiring consideration of a full EIS, but fails to do so with complete clarity. The whole area of NEPA compliance should be clearly established by statute to avoid lengthy court challenge and delays regarding at what point any decision is a "major Federal action" and whether all alternatives were adequately addressed.

Sec. 406. This section authorizes the appropriate Federal officials to take such actions as they consider necessary to achieve operational status of a repository "as soon...as possible" after license approval.

It would be useful for the Congress to set a target date for repository completion and initial operation.

Sec. 407(b). We recommend the inclusion of the following item number 6 - "intergrated so as to compliment ongoing site chracterization activities at the repository site."

Sec. 407(d)(1). This section, which generally deals with the development of a test and evaluation facility (TEF), states that the preparation and transmittal to Congress of a proposal for a TEF does not require a full-scale EIS. It does, however, require an "environmental assessment" to accompany this proposal. Again, this environmental assessment should be clearly defined as prepared pursuant to the Commission's compliance with NEPA, not as a new distinct substantive requirement.

Sec. 407(d)(1) and (2). These sections provide that an environmental assessment shall accompany the proposal for a TEF to the Congress, while an EIS is required when Congress actually authorized construction of a TEF. Section 407(d)(2) states the EIS need not consider any alternative to the design criteria set forth in 407(b). Since Congress has already established the need for a TEF facility, this EIS need not address the question of the need. Only those sites under consideration for a permanent repository need be discussed in an EIS as alaternate sites. These clarifications should be made to the bill.

National Site Survey Program. This program should be conducted so that it does not interfere with the selection of the first site for characterization. The legislation should make it clear that the program is applicable to subsequent sites only.

Contract Provision. A section should be added to Title IV that authorizes the Secretary to enter into contracts with owners of high-level radioactive wastes and spent fuel from civilian nuclear activities for the permanent disposal of such materials. The Secretary should be required to take title at the reactor site upon request of the utility to all spent fuel cooled for at least five years or upon the expiration of the owner's license to possess such spent fuel. The Contract would also call for the Secretary to take title to all high-level radioactive wastes at a reprocessing plant. The Contract should cover the cost of transportation of such spent fuel or high-level radioactive waste. The contract should provide that the Secretary shall accept spent fuel and high-level wastes upon initial operation of a repository or long term storage facility. Similar to the Contract provided for in Section 303 regarding the interim storage of spent fuel, owners of spent fuel should have the right of retention of a non-transferable interest in the fuel resources in spent fuel less the cost of recovery. For spent fuel or high-level wastes from spent fuel discharged prior to enactment of the Act the Secretary shall collect a one-time fee, payable upon taking delivery of the spent fuel, equivalent to one mil per kilowatt hour of energy generated from such spent fuel. For spent fuel or high-level wastes from spent fuel removed from the reactor after enactment of the Act, the fee for such services privded by the Secretary should be the one mil per kilowatt hour payment mandated by Section 603 of the Act and should be designated as the one-time charge for all costs associated with the future disposition of the particular waste or spent fuel.

Title V. LONG TERM STORAGE OF HIGH-LEVEL RADIOACTIVE WASTE AND SPENT FUEL FROM CIVILIAN NUCLEAR ACTIVITIES.

This element of the legislative program is needed and appropriately covered in the Bill language.

Title VI. FINANCIAL ARRANGMENTS

Sec. 602. This section authorizes the Secretary to borrow money from the Treasury, and to pay appropriate interest thereon, to carry out the purposes of the Act.

In addition, the Secretary should be required to reinvest in Treasury instruments, any surplus amounts in the waste managemement fund, and to collect an appropriate interest thereon.

Sec. 603. This section establishes a mandatory fee of 1 mil per kilowatt-hour on electricity generated by civilian nuclear power plants and sold on or after 90 days of enactment of this Act. While this fee appears to approximate the amount currently necessary to provide for nuclear waste transportation, storage and disposal, it may, in the future, prove to be too high or too low. Consequently, the Secretary should be required to periodically (annually) review this fee and recommend to Congress any necessary changes in the amount. The fee should only be changed by Act of Congress. This fee should not be payable until a binding contract is entered into between the owner of spent fuel or high level waste and the Secretary.

It should be clearly stated that this fee is a component part of the unit costs.

A more detailed itemization should be provided for the purpose of the fee and the cost elements that are covered. The language indicates that the storage and permanent disposal are to be covered. It should be expanded to indicate a designation of specific site selection and site related costs plus transportation of the spent fuel from a reactor site and high level waste reprocessing plant. This section should require the Secretary to enter into contracts to provide the functions of Title IV and V and provide for a commitment on the part of the Federal Government as to when it will take physical possession of the materials.

Furthermore, we would propose that the ninety day provision contained in Sec. 603(a) be extended to at least 180 days and preferably 365 days since more time is required to provide for a PUC action.

One-time fee. A new section should be added to Title VI to provide that a one-time fee would be paid into the waste management fund at the time of delivery to the Secretary of spent fuel, or high-level radioactive waste from spent fuel, removed from reactor cores prior to enactment of this Act. Without this provision, future consumers of nuclear-generated electricity would be required to pay for disposal of spent fuel or high-level waste from which they received no direct benefit. Since most utilities have taken into account the need to make a future payment for disposal costs on spent fuel already removed from reactor cores, the actual beneficiaries of the nuclear fuel would pay for its disposal costs. This one-time fee should approximate a one mil per kilowatt hour charge and the electricity generated from such spent fuel or high- level radioactive wastes.

State Impact Assistance. There is an additional aspect of the cost of waste disposal facilities which we believe should be treated in legislation. Financial aid should be made available to assist State and local governments of areas affected by waste storage and disposal facilities, including AFR host states. This aid should be provided to offset any direct or indirect costs incurred because of environmental, economic or other impacts resulting from the facilities. The cost of such financial aid should be financed from fees collected from the utilities and paid to the Department of Energy as provided in Sec. 601. The purpose of this financial assistance should include: (i) financing meaningful State and local participation in all stages of the planning, siting, development, construction and operation of a facility; (ii) increasing public knowledge of facility planning and impact management; (iii) making payments in lieu of taxes, to offset, for example, increases in necessary housing, schools or public services; to aid the construction and maintenance of highways; and to enhance public safety and emergency response capabilities.

The State and local community which hosts a nuclear waste repository is performing a service for all citizens who benefit from the economical and environmentally sound generation of electricity from nuclear power and they should be reimbursed for such reasonable costs.

Title VII. STATE PARTICIPATION IN THE DEVELOPMENT OF REPOSITORIES AND RETRIEVABLE, MONITORED STORAGE FACILITIES FOR SOLIDIFIED HIGH LEVEL RADIOACTIVE WASTE AND SPENT FUEL.

Sec. 701. It is recommended that the phrase "consultation and concurrence" be amended to read "consultation and coordination".

Sec. 701(f)(3). This section provides for the single-House approval of a state objection (or single House veto) to an application for authorization to construct a repository or retrievable, monitored storage facility. The constitutional system of checks and balances between the Executive Branch and

Legislative Branch more appropriately should require both Houses of Congress, in effect, to veto the Executive's decision to implement this legislation in siting a repository by acceding to state objections.

Sec. 708. It is not clear why this section has been included and we suggest that it be clarified.

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